The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVIII, No. 14 CHICAGO, ILLINOIS APRIL 7, 1917

PUBLIC HEALTH TRAINING IN UNIVERSITIES

GEORGE E. VINCENT, PH.D., LL.D.
MINNEAPOLIS

The law of social demand and academic supply is far from an exact formula. Sometimes universities offer a training for careers that depend on other things than institutional preparation. For example, a few years ago several universities announced special courses for candidates for the diplomatic service. When it transpired that political pull, an actual speaking knowledge of foreign languages, or a recognized social status were much more likely to gain one a position than the pursuit of courses in comparative government, international law, the history of diplomacy, and a precarious reading knowledge of French and German, the reasons why these university courses were not patronized became evident. On the other hand, academic institutions are often slow to recognize actual vocational needs, and even when attempts are made to meet authentic demands, the first efforts are too likely to be abstract and speculative, and out of relation to the actual concrete problems involved.

The efforts of universities to meet the needs of organized public health have illustrated both of these tendencies. The first courses to be offered were generally in advance of specific demand. There was little response on the part of prospective public sanitarians. The careers in preventive medicine and public hygiene were not sufficiently attractive, and in the absence of a merit system the causal connection between thorough preparation and appointments and promotions was not convincing. Of late, however, the widespread interest in social medicine, the demand for more efficient service, and the multiplication of administrative and specialized positions, governmental and institutional, have given an impetus to public health training. There is now a possibility that in attempts to meet the growing demand, the universities have rather hastily and with inadequate resources organized curriculums which are not thoroughly adjusted to actual needs. It is only what, in the circumstances, was to be expected. The universities which have taken the lead deserve full credit for the initiative and ambition which they have displayed.

It seems clear that successful public health training must be carried on either by universities or by schools in close affiliation with them. Only in a large and well developed institution is it possible economically to provide the various kinds of knowledge and discipline which have a bearing on the preparation of a public sanitarian. Moreover, the university atmosphere of investigation and scientific collaboration offers the most favorable and stimulating environment for the kind of training under discussion. This is not to say that the university can provide all of the necessary conditions. The closest and most sympathetic cooperation with agencies which are carrying on actual public health activities is of fundamental importance. For this no university can in itself provide a substitute. To the universities of the country, however, we must look for leadership in developing thorough and progressive schools or departments for training various types of public health functionaries.

As a matter of fact, except for the apprenticeship opportunities in federal, state and city bureaus, the conscious attempts to provide such training have so far been made by the universities. Much has already been accomplished. The lead was taken by the University of Pennsylvania in 1909. This example was followed by Harvard in 1910, Wisconsin in 1911, Tulane in 1912, Colorado, Michigan and the Detroit College of Medicine and Surgery in 1913, Bellevue and California in 1914, and Ohio State in 1915. In October, 1918, Johns Hopkins University, with the aid of the Rockefeller Foundation, will open a school of hygiene and public health under the most favorable conditions which have as yet been realized for the training of specialists in preventive medicine and health administration. The principles, curriculums, standards and ideals embodied in the plans which have been put in force by these institutions offer the general outlines of a system which in the future will gradually be improved and more nicely adjusted to the actual needs of community and nation.

Of the ten institutions, all but two require for admission to the public health course the degree of Doctor of Medicine. Three universities require both the bachelor's degree and the professional medical degree. The obvious implication is that the full preparation of a medical practitioner is desirable, even essential for successful public health work. In some cases this idea is modified to this extent: In the last year of the medical course, students are permitted to substitute, for certain clinical subjects, courses which have a direct bearing on preventive medicine. How far the fact that the initiative in organizing public health training has been taken by the medical schools of the universities influences the requirement of the M.D. degree, and how far this stipulation is necessary for the end in view will be briefly discussed in a later paragraph.

In seven of the institutions under consideration, the training is given in one year; in three, two years of work are required. This variation is correlated with different forms of recognition, varying from the degree of Doctor of Public Health to a certificate of public health or the title of Graduate of Public Health. The

lack of uniform practice reflects a variation in ideals and marks a difference in the types of functionaries and the kinds of training which are required for these officers. Seven institutions give the degree of Doctor of Public Health, namely, Pennsylvania, Harvard, Wisconsin, Tulane, Colorado, Michigan and Bellevue. Of these schools, Michigan, Colorado and Wisconsin offer two year courses; the other four require only one.

As has already been indicated, the chief recognition takes the form of the degree of Doctor of Public Health. Pennsylvania also confers the degree of Certified Sanitarian after a one year course. Certain graduates of one year courses at Wisconsin and Detroit receive the degree of Master of Public Health. Four schools, California, Colorado, Michigan and Ohio, confer the degree of Master of Arts in Public Health and Master of Science in Public Health after one year of residence. Colorado also grants the degree of Master of Science in Sanitary Engineering after a one year course. There is obviously a tendency to assimilate the public health degrees to the graduate school system which has been uniformly adopted by the leading American universities. Thus, Doctor of Public Health corresponds with the degree of Doctor of Philosophy, while the Master's degrees in Public Health take their position as the recognized second degrees in the higher educational system.

The processes of imitation which so quickly tend to conventionalize American education have not had time to produce a fixed type of public health training. The obvious necessities, the kinds of knowledge, discipline and technic available have inevitably created uniformities. Around these, however, there is a wide field of variation. Laboratory courses in bacteriology, chemistry, protozoology and parasitology are naturally a part of the curriculum in all of the schools. These courses doubtless vary a good deal in content and method of instruction. In only three institutions is special mention made of tropical diseases. The use of different terminology and the grouping of subjects in various forms make it difficult to reach positive conclusions as to precisely what the requirements are. A substratum, however, of laboratory training is prescribed by all the schools.

The next group of courses may be described as specialized public health courses. These are public hygiene, preventive medicine, public health administration, occupational diseases, school inspection, etc. It is not always easy to differentiate these courses from laboratory courses, but in general they seem to be of a more definitely professional character, dealing more concretely with the actual problems of preventive medicine in the field. Although the published programs of three or four of the schools make no explicit mention of teaching of this character, it is fair to assume from the general statements that instruction in courses of this kind is provided.

Five of the ten schools offer courses in sanitary engineering which include water supplies, sewerage and sewage disposal, street cleaning, and housing and ventilation. Harvard, in cooperation with the Massachusetts Institute of Technology, lays stress on the engineering aspects of its curriculum. As has already been indicated, Colorado confers a special degree, that of Master of Science in Sanitary Engineering. It seems to be recognized that the engineering aspects of public health work must find a place in even a general course for the preparation of public sanitarians.

Five out of the ten schools make a place for vital statistics or demography. Sanitary legislation, political science and economics are mentioned in the curriculums of two institutions. The first impression is that the social sciences have not been sufficiently recognized in the organizing of these public health training courses. It is altogether likely, however, that in many of the special courses which have been mentioned above the questions of vital statistics, the legal aspects of public health organization and the recent progress of socialized medicine, health insurance, etc., are included. Even when allowance of this sort has been made, it seems probable that the medical school administration which has been chiefly responsible for organizing these courses of study has not sufficiently recognized the need of the cooperation of departments of economics, political science, sociology and schools of law.

One of the schools, the Detroit College of Medicine and Surgery, requires a definite period of service in a hospital for contagious diseases. Each student of public health courses is apparently required to serve an internship of twelve weeks in such an institution. Undoubtedly the students of other schools are brought into some relation with hospitals for contagious diseases in connection with the field work which is required in the curriculums of all the schools. There is a valuable suggestion in this plan of requiring a regular internship service in the wards of a hospital for contagious diseases. For students specializing in epidemiology this would be a peculiarly useful experience, under proper supervision, with opportunities for laboratory experience.

It is worth noting that all of the schools provide for practical field work. The need of connecting the experience in the laboratory and the material of the lecture room with the actual concrete problems of the profession is universally recognized. The schools have made close working arrangements with municipal and state departments of public health, with school authorities, and with charitable and correctional institutions, so that students may gain vivid first hand impressions of the conditions to be met, of the technic for dealing with them, of the spirit and methods of public health administration, and of the knowledge of human nature essential to firm and tactful control of individuals and groups.

Eight of the ten schools require as a condition of graduation the presentation of a thesis. This ordinarily takes the form of a piece of practical work, as, for example, a health survey of a given area, a study of an epidemic, or an analysis of a public health mechanism and its operation. Two or three of the schools explicity say that the requirements for the degree cannot be stated in terms of class room hours or other conventional credit units. It is the avowed purpose to lay the chief stress on individual power and the abilty to deal intelligently and effectively with the subject matter and problems under consideration. The stress laid on the thesis serves to emphasize the research character of this public health training, and the attempt to make it vital and practical rather than what "the man in the street" is wont to call "academic."

A few phases of public health work seem either to have been overlooked or only incidentally recognized. For example, the function of public health education and publicity is one which deserves study and for which special types of training should be provided. It has become evident of late that the education of public

opinion in a democratic country is necessary for the progress and stability of public health work. A few individuals have shown in a conspicuous way how much can be accomplished through wise methods of education and publicity. Other types of functionaries, such as public health nurses and sanitary inspectors, of whom it is quite impossible to require a full medical course, will soon demand special forms of training. Whether apprenticeship in public health service will provide the chief means of preparation or whether schools of public health will assume this function is a question for thoughtful consideration.

In an attempt to outline the chief lines of future development it may be well to enumerate the different types of public health functionaries for whom training will have to be provided. These fall into a number of fairly well defined groups: 1. Public health administrators, men with fundamental and thorough training who are capable of serving as federal functionaries, and as state, city and county health officers. 2. Laboratory men who have had sufficient contact with field work to be thoroughly intelligent about their duties. In this group may be included also statisticians whose training in public health enables them to interpret with some intelligence the data with which they deal, and to estimate with reasonable accuracy the coefficient of corruption and the mean of mendacity by which vital statistics are so largely vitiated. 3. Administrative specialists, who, with a background of general training, have become proficient as epidemiologists, authorities in tuberculosis or specialists in venereal diseases. 4. Sanitary engineers who deal with engineering problems not merely from a physical but from a biologic point of view. 5. School medical officers who are more than practitioners and see the health of the school in its wide relations to community life on the one hand, and to individual efficiency on the other. 6. Specialists in public health education and publicity who combine with accurate knowledge the capacity to apply practically the principles of individual and group psychology. 7. Public health nurses with special training and aptitude for the important duties which more and more will devolve on them. These nurses will be differentiated, for example, into the city nurse, the town nurse and the rural nurse. 8. Sanitary inspectors of many kinds, the artisans of the public health service, who nevertheless require a training which will enable them to do their work intelligently and with satisfaction both to themselves and to the community. Doubtless as time goes on the types enumerated above will be still further differentiated, and new functionaries will be added to the list. A system of public health education must consciously take into account the functions to be performed and adapt its methods to the indicated kinds of training required.

A word may be said here about the sanitary engineer. It is sometimes assumed that engineering training with special reference to water supplies, sewage disposal, etc., best fits a man for public health administration. This is far from being true. The sanitary engineer is a specialist whose expert services are essential. But he has not the background of biologic training, the intimate knowledge of infectious diseases, or the mastery of medicine which enables him to assume the general oversight of a municipal or state public health organization. The sanitary engineer is a necessary member but not the responsible head of a modern mechanism of social medicine.

The underlying idea of successful technical training is that it should be in the hands of men thoroughly familiar with the profession involved and completely imbued with its point of view and spirit. This means that no successful course for specialized training can be made by the mere grouping of existing courses and the printing of these in a single catalogue. Business training in American universities affords an illustration in point. Colleges of commerce were created over night. Courses in economics, business law, modern languages, commercial geography, banking, insurance, etc., were grouped into a new curriculum and offered to an admiring public. The failure of these early attempts was inevitable. The courses were taught not by men who were familiar with the actual problems of business, but by instructors whose training and interests were of a wholly different tradition. The recent progress in schools of business administration has been due to the introduction of new types of teachers who, by practical contact with business organizations, have trained themselves for efficient service. The best schools are being brought into close and sympathetic connection with the business world.

This principle applies to public health training in a most obvious way. Laboratory courses, public hygiene courses, and instruction in law, economics and sociology will be of little value unless they are all dominated by public health ideals and are constantly related to public health problems. It is for this reason that the new school at Johns Hopkins University will be in a position to create from the outset the right atmosphere, by securing men who represent public health training, spirit and ideals, and who will inspire in their academic colleagues that intelligent cooperation so essential to a unified and successful course of technical training. In order to insure this unified, purposeful kind of organization the agency for the teaching of public health must have reasonable autonomy. It will not do to make the new curriculum a mere by-product of medical education or subject to its sole control. There should be a special administrative board and a director imbued with the ideals of preventive medicine. Only under such conditions can a public health teaching organization gain the requisite authority, coordinated efficiency and professional spirit.

The conditions for admission to a public health course will require careful consideration. There is an advantage in making the degree of Doctor of Medicine a prerequisite. This degree received from a medical school of the first class guarantees sound training and maturity. Moreover, it gives a public health officer a sense of security and independence, for he feels that he can fall back on the practice of his profession if he proves unadapted to the public career. On the other hand, there is a little danger that a man may gain too much of the physician's individualistic philosophy and therapeutic bent, give too much time to unnecessary medical and surgical technic, and for the very reason that he may take up the practice of his profession, lack the devotion of the person who has committed himself almost irrevocably to a career of service under public auspices. It is altogether likely that requirements will be so modified as to permit a student of medicine, after his first two years, to substitute in the second two years a good deal of public health work for the clinical courses of the regular medical curriculum. It is undesirable, however, for men who are being trained for the highest positions in preventive medicine to have less than the full equivalent of a four

year medical course with two years of graduate work.

If the analysis of functions indicated in an earlier paragraph is valid, it would suggest that courses of different length and different requirements will be prescribed for the several groups. It is quite conceivable, therefore, that curriculums may vary in length from two or four to eight years beyond graduation from high school. The earlier limit might apply to nurses and inspectors, while the latter would have reference to the health executive who assumes responsibility for a large administrative unit. Appropriate certificates and degrees will doubtless be worked out and given, as in the case of other designations, a standardized value, so that the holding of these forms of recognition will be directly related to the securing of positions, promotion, etc., in public health organizations.

Lack of time and my obvious incompetence afford good grounds for not attempting any detailed discussion of curriculums. One or two suggestions may be made in passing: 1. The fundamental public health background should be provided for all specialized functionaries. The unity of the profession, the proper team play, and efficiency can be secured only as each individual sees his special task in the wider relationships of the general theory of preventive medicine and of public health purposes. 2. The practical field work must be done under supervision, and must be carefully checked and reported. There is a good deal of so-called practical work done in connection with educational institutions, but this is likely to be of little significance because it is not made a vital part of the curriculum as a whole. The cooperation with public health agencies, therefore, will have to be worked out in a definite and precise fashion. It is possible also that it will turn out to be wise not to confer the highest degree until a candidate has demonstrated for at least a year his ability to render satisfactory service in connection with some regular agency of public health. This test would correspond to the one year's internship which medical education regards as essential for the completion of a course of thorough general training.

Ordinary laboratory facilities and supplies, in the case of a school of public health, should be supplemented by a statistical laboratory with its proper equipment; by a special public health library and museum, with exhibits of all kinds bearing on public health problems; by a collection of slides and films; by equipment, models, etc., illustrating various phases of sanitary engineering, water supplies, filtration plants, sewage disposal, housing and the like, and by exhibits of public health publicity material, charts, posters, placards, newspaper articles and advertisements. Obviously all the devices for administrative purposes, record cards, blanks, filing systems, etc., would form a part of the illustrative material at the disposal of every public health school.

The social sciences will receive more emphasis. Courses in vital statistics, the history of public health work, in the social philosophy which underlies modern collective undertakings, the economic side of public health, the growth of administrative law in its relation to preventive medicine, and the problems of poverty and of dealing with dependent, defective and delinquent groups will receive increasing attention. This will have a specially important bearing on giving not only the public health point of view but also the attitude toward modern society which is necessary for devoted and loyal public service.

It is to be hoped that some system of fellowship aid may be made available to encourage promising men and women of limited means to enter the profession. It is possible that, in connection with these schools, endowments may be secured for fellowships of this kind. It is also to be expected that subordinate positions in public health departments will be open to students in schools of public health so that these persons may at the same time support themselves and turn their work to account as a part of the training which they are receiving. In many places, arrangements of this kind have been made. It is reasonable to look forward to an extension of this plan. Fellowships might also be made useful in encouraging small communities to engage full-time health officers. Graduates with stipends for a year might in this way find openings, and after demonstrating convincingly the possibilities of modern health administration, might be given permanent positions, wholly sustained by local appropriations.

The outlook for public health in the United States is encouraging. There is an increasing recognition of its economic and social importance as well as its bearing on individual happiness. The new sense of nationality which is being forced on us will accustom us more and more to taking the general rather than the individual point of view. We shall be driven to cooperate and to undertake public services on a new basis. It is, therefore, a time when the subject of training public health officers is peculiarly significant. It is to be hoped that the work will be developed not through institutional and local ambition, but with the welfare of the whole country in view.

It seems clear that not every university which has a medical school can provide a full course of public health training. It is desirable, therefore, that a few centers be recognized, and that for the higher types of training these centers be given the ample funds which are necessary for the right sort of education. This does not mean that in many places courses for public health nurses and inspectors may not be profitably introduced, or that in still others laboratory men may not be trained at least up to a certain point. Standards and ideals, however, should be set by a few institutions which have the resources which will enable them to establish genuine schools well equipped, properly manned, dominated by authoritative leaders, inspired by the public health point of view, and working in close fruitful relations with the public health agencies of the community, the state and the nation.

The University of Minnesota.

Aridity of Indoor Atmospheres in Winter.—S. D. Flora, an observer of the United States Weather Bureau at Topeka, made a series of tests of the indoor and outdoor humidity in his office over a period of forty days, using the standard whirling type of psychrometer at 8, 12 and 4 p. m. each day. The room in which the indoor tests were made was said to be a well ventilated office room, heated by steam and kept at an average of 72 F. For the period named the average indoor relative humidity was said to be 23 per cent., the same as that of the desert in Death Valley, Calif., in the summer of 1891. The outdoor humidity in Topeka during the same period averaged 82 per cent. The average relative humidity during the driest month of the year at Yuma, Ariz., is 35 per cent.; for Santa Fe, N. M., 29 per cent.; for Pueblo, Colo., 38 per cent. Thus, as said in *Public Health Reports*, Feb. 23, 1917, the indoor air in heated houses and buildings is drier than that of the desert.

PUNCTURE HEADACHE *

CHARLES L. DANA, M.D.
Professor of Nervous Diseases, Cornell University Medical College
NEW YORK

The methods of modern medicine have caused not a new disease, but an additional morbid state, namely, the headache and associated symptoms following puncture of the spinal canal and removal of cerebrospinal fluid.

This headache has become so common, and its cause is so well recognized, that the term "puncture headache" has become a colloquialism in the hospitals. It is not a serious condition, and it lasts but a short time, but it is a distinctly new thing in pathogenesis and neurology; hence it is proper to study it, describe it, and, having learned its natural history, to place it in the literature of our specialty. We may incidentally learn how to prevent it, and draw some inferences from its phenomena as to other forms of headache. For we hardly know the cause of any of our ordinary headaches so completely as we do that of this particular semeiological infant.

Symptoms.—The headache rarely begins until the day following the puncture, when the patient usually is allowed to get up. It may start, however, directly after operation or come on three days later, depending on the activities of the patient and the conditions of the cerebrospinal fluid circulation. The patient feels a diffuse, bilateral pain, rather severe over the upper brow, and perhaps somewhat less severe in the back of the head. Occasionally it is worse in the occipital region. The pain may be accompanied with nausea and even violent vomiting, and also with some giddiness, mental confusion and faintness. The symptoms are increased by active exercise, and usually are promptly relieved by lying down. The flatter the patient lies, the better he feels. There may be some changes in the pupils and in the blood pressure.

The condition lasts with remissions for from five or six days to two or three weeks. When the trouble lasts and is obstinate, there is an accompanying cerebral dysthesia and sense of confusion or giddiness, which may cause worry and alarm.

Etiology.—The symptom is more common in patients whose cerebrospinal fluid is negative, and in whom the fluid comes out under low pressure. In other words, the healthy cord reacts badly to puncture. It is more common and severe in young adults, in women, in persons of high-strung nervous temperaments, in the anemic and in the thin blooded. In acute conditions like poliomyelitis and meningitis, in which there is high pressure, puncture often relieves headache, especially in children. In advanced years, and when there is abnormal pressure to the spinal fluid, the reaction is less.

In diagnostic puncture the amount of fluid usually removed is from 4 to 10 c.c. It does not make much difference whether a small or large amount is removed within these limits, though some state that headache rarely occurs if the amount removed is very small and if the fluid is removed very slowly (I. Strauss). The headache results from the acute disturbance of the mechanics of the cerebrospinal fluid circulation. I am told that removal of the fluid from the cerebrospinal ventricles does not cause the headache, probably because in these cases the patients are kept quiet in the horizontal position.

There is no great difference whether the fluid when removed is under a plus or minus pressure within physiologic limits, i. e., from 5 to 8 mm of mercury. As matters go in a hospital, in about half the cases of lumbar puncture there is no headache reaction unless the patient is allowed to get up very early. At one time we thought patients did better if allowed to get up promptly on the day of puncture. This was found sometimes to work, but on the whole was not good practice.

Physiology.—The normal amount of cerebrospinal fluid at any one time is small, probably not over from 2 to 6 drams (from 8 to 24 c.c.); but with brain atrophies it increases in amount to 2 ounces or more.

Ordinarily it is secreted slowly and in small amount, although in fractures of the brain it has been known to drain away at the rate of 600 c.c. daily. The amount can be increased by compression of the abdomen, by horizontal position and by straining, that is, by forced expiration with the glottis closed. The tension is about 5 to 7.3 mm. of mercury, and is about the same as that of the capillaries.

Pathology.—We may suppose that the changes in pressure caused by puncture and removal of fluid take away the water pad of the brain, so that it rests unprotected on the bone, causing an irritation of the dural fibers of the fifth and occipital nerves. The fact of the instant relief caused by the horizontal position supports this view.

On the other hand, the choroid gland can ordinarily secrete in twenty-four hours much more fluid than is removed by puncture. Therefore it must be that the puncture either inhibits the activity of the gland, or causes some block in the normal flow. Most persons with headache feel better in the horizontal position. It is quite possible that in fatigue and toxic states the choroid plexus is disturbed in its functions, and there is a reduction or an excess of flow.

Prevention and Treatment.—The headache can usually be prevented by keeping the patient in a horizontal position for three or more days. After the headache occurs, the effective measure is to return the patient to bed. Possibly the very slow removal of the fluid in minimal amount (2 c.c.) may be effective. Abdominal compresses may also help.

Other Headaches.—Some interesting inferences can be drawn as to the pathology of other headaches from the phenomena of puncture headache.

The location of the pain in puncture headaches is much like that in neurasthenic, and in certain toxic and autotoxic headaches. In these the patient also is more comfortable if he lies down, and physical or mental exertion makes him worse.

Is it not possible that a good many headaches are due to defective action of the choroid gland, to an imperfect cerebrospinal fluid circulation? As stated before, the amount of cerebrospinal fluid is normally rather small, and secreted slowly. This fluid has a normal and steady flow from the lateral ventricles into the third and fourth ventricles through the foramen of Magendie and lateral recesses of the fourth ventricle to the subarachnoid space; thence the most of it passes into the villi of the dura and the venous sinuses and veins. There are various ways in which this flow might be disturbed. It seems to me that the puncture headache may have a genuine value in calling our attention to the pathology and physiology of this third system of circulation in the human body.

53 West Fifty-Third Street.

* Read before the New York Neurological Society, Jan. 2, 1917.

THE AFTER-CARE OF INFANTILE PARALYSIS

ROBERT W. LOVETT, M.D.
BOSTON

The problem of the treatment of the convalescent stages of infantile paralysis is definite, specific and undisputed. It is to restore the maximum ultimate efficiency to affected muscles. The present paper is a discussion of how this may best be brought about.

Our treatment of the acute stage of the disease has made great strides of late. Meddlesome therapeutics in the way of drugs, counterirritation and massage in the tender stage have been largely abandoned, the general practitioner is guarding against and preventing unnecessary deformity, and rest is being recognized as the best treatment at this time by the intelligent physician. In the later stage, too, an adequate and rational operative plan of treatment has been developed and is being practiced by most orthopedic surgeons. But in the convalescent stage, which may be assumed as lasting for about two years from the time when the tenderness disappears, little real change has been made in methods since the time when those of us now in middle life were medical students.

The treatment of this stage of the affection most in vogue in this country today is to employ massage and electricity, to use braces, and to allow walking when possible. The following quotation from an orthopedic textbook published in 1885 is representative of the view at that time and of today as well:

> But in these cases, after the deformity is corrected and an appropriate instrument applied, frictions, massage, electricity and instructing the patient, if old enough, to exercise frequent voluntary motion must for a long time be resorted to.

It may be well to inquire, therefore, if we cannot make more modern the treatment of the middle stage of this affection when the treatment of the early and late stages has been so radically changed in the last few years. This is the more important because during this period is determined in many cases the degree of recovery of the affected muscles. In no department of surgery does precise, long continued and common sense treatment have a more determining effect on ultimate function than here.

Certain fundamental facts bear strongly on the formulation of the treatment at this stage.

1. The existence of *tenderness* may be assumed to be evidence of the persistence of some degree of the acute process in the cord. The use of massage and manipulation while tenderness lasts will, as a rule, make it more acute and prolong it indefinitely. Theoretically it is not physiologic to irritate and stimulate the peripheral ends of nerves connected with acutely or subacutely inflamed nerve centers. No matter how long the tenderness may legitimately continue, active treatment should not be begun until it has practically disappeared. This event may be assumed to mark the end of the acute and the beginning of the convalescent stage.

2. *Muscular weakening* is much more common than total paralysis, the Vermont figures having shown that partial paralysis is nine times as common as is total paralysis. This must necessarily change our conception of treatment, for the condition is not to be regarded as a more or less hopeless loss of power, but as a muscular weakening with perhaps some total paralysis. If the paralysis were, for the most part, total and hopeless, we should resort to braces and not restrict activity, for there would be no use in so doing. But with a weakening rather than a total paralysis, it should obviously be our effort to strive to strengthen the weakened muscles and to allow no consideration to interfere with this effort.

3. *Spontaneous improvement* does not cease at the end of about six months, as we formerly believed, but continues for at least two years and probably longer, although it is more rapid in the first year than later. This fact is of importance in encouraging us to feel that we have an asset strongly in our favor during these two critical years.

4. *Fatigue* is a detrimental factor of the highest importance to convalescent muscles, and in weakened ones fatigue is brought about with surprisingly little activity. Fatigue of a seriously harmful character can be caused not only by walking too much, but also by the overuse of therapeutic exercises and especially by heavy or prolonged massage. These statements rest on quantitative data already published and on a series of observations on children under treatment when enforced inactivity has been necessitated by illness or operation. Not only may fatigue and overuse delay the favorable progress of convalescing muscles, but also it may lead to a permanent loss of returning power and to permanent and irremediable muscular stretching.

5. *Braces and apparatus* are not what one would desire to put on a weakened leg when one is striving to secure muscular development. They are heavy, they induce an unnatural use of the leg, they prevent free activity, and the bands and lacings constrict the muscle. On the whole they favor muscular atrophy; but there is no evidence to show that they increase shortening of the affected limb. Any one would grant that, other things being equal, a brace was undesirable. But more undesirable than the use of braces is the acquirement of deformity, the stretching of muscles, and the loosening of joints from not using them when necessary. The only statement to be made is that braces should not be used unnecessarily, but that they should be used when needed; that they are not in any way therapeutic, but protective and conservative, and that the so-called "brace treatment" of this stage of infantile paralysis does not exist, because to put on a brace is no more treatment of the disease than is the use of crutches in the treatment of fracture of the leg.

Having discussed these more or less fundamental considerations, we are now in a better position to formulate what should be the modern treatment of the convalescent stage of infantile paralysis.

Diagnosis.—The first requisite for adequate and scientific treatment in this as in other affections is an accurate diagnosis, and such a diagnosis in infantile paralysis demands an examination of every available muscle or muscular group in both arms, both legs, neck, back and abdomen. It must be determined which muscular groups are normal, which weakened and wholly paralyzed. The patient should first be made to walk if he can, as in walking muscular function can be observed and gross defects defined as in no other way. Children should be stripped naked, and adults should wear only a T bandage. Then the voluntary contractile power of the different muscles and muscle groups should be estimated by directing certain movements and seeing if there is response and whether that response is normal or weak. The stronger tests should be used first; next those, when the conditions of

movement are easier, in which the weight of the member to be tested is partly eliminated by position; lastly, the lowest grades of muscular power may be detected by slinging the limb by means of a bandage. To find the faintest possible trace of power is of importance in prognosis. It must be remembered that muscles act in groups (synergically) and that the paralysis of one muscle alone is rare. In the case of babies, the voluntary activities of the child must be watched and reflex stimulation used to provoke the various movements with the child held in different positions. Such examinations are not accurate, and take much time.

In general an adequate examination under the most favorable conditions of cooperation and intelligence on the part of the patient will consume at least twenty to thirty minutes, and in the case of young children from half an hour to an hour. A quantitative test in older children by means of the spring balance method is desirable but not easily available, as its use requires two highly trained assistants.

Developmental Treatment.—Warm saline baths, which have probably been in use toward the close of the acute period, should be continued daily. The affected limbs should never be chilled but warmly protected. Outdoor air and a general physical examination are desirable, as some degree of cardiac involvement is not unknown. Attempts to prevent deformity should continue.

Recumbency and Activity.—Prolonged recumbency is not desirable on general grounds, and long continued sitting favors the formation of the commonest contractions, flexed hips, flexed knees and dropped feet. These should be carefully watched for, especially the former. A large amount of creeping is undesirable in children with good hip flexors and weak hip extensors, as it favors hip flexion deformity by the overdevelopment of the muscles used in creeping. The upright position is the normal one for human beings, and the instinctive effort to balance in this position is, I believe, desirable, by stimulating to activity various muscles not otherwise easily stirred to action. In the case of intelligent parents, when the upright position cannot be assumed otherwise, it is well at the end of two or three months to furnish simple braces, by means of which balance may be practiced and a few steps of walking allowed each day. The braces should be worn only during this time. The children of ignorant parents should not be supplied with braces as soon as this, and young children must needs be kept recumbent.

The surgeon assumes a serious responsibility who allows walking to any extent in the first year, except in cases which are too grave to warrant much hope of recovery; and even in these cases he must be very skilled in prognosis if in the first months after the attack he can forecast the future of all such cases. The avoidance of fatigue is one of the keystones of our arch.

Probably the most dangerous cases, so far as muscular recovery goes, are the cases with paralysis so slight that the patients walk with fair facility and a slight or moderate limp. It is very difficult to induce the parents to keep these children off of their feet for from three months to a year, which must often be done if complete recovery is to be tried for, and these are the cases in which such recovery may often be obtained.

Apparatus and Braces.—Apparatus and braces should be used sooner or later if in attempted standing or walking the upright position is impossible, or if in such position an abnormal attitude is assumed in ankle, knee or spine. Deltoid weakening or paralysis should be treated by a platform splint to elevate the arm at shoulder level or less effectively by a sling.

Abdominal weakening is of all the paralyses the one most frequently overlooked and one capable of doing much permanent harm. It is extremly common and, as a rule, easily treated by a supporting cloth corset.

Deformity.—Fixed deformity, if present, should be removed by stretching, tenotomy or fasciotomy, and no treatment will be of much avail until such deformity is corrected.

There are three therapeutic measures addressed directly to securing muscular improvement:

The first of these, *massage*, stimulates circulation, tends to preserve muscular tone, and promotes the removal of waste products. Properly controlled, it is of use; in excess or unskilfully given, it is dangerous and harmful.

The second, *electricty*, depends for its vogue largely on tradition. By some it is advocated, by others decried. In mild cases it is undoubtedly harmless and perhaps beneficial. On the whole, it has done great harm and caused many needless cripples, because it has been administered on a large scale and often very loosely given, while methods of treatment universally acknowledged as useful have not been used; and the parents have been lulled into a false security, thinking that adequate treatment was being pursued, while invaluable time was being lost and disabling deformities acquired.

Muscle Training.—The third of these measures, in my opinion, is the keynote of modern treatment of infantile paralysis. It is an application of physiology and anatomy to compensation for a pathologic lesion. Every muscle is connected with several nerve centers, every nerve center controls more than one muscle. The predominance of partial paralysis shows that partial rather than total destruction of nerve centers occurs in nine out of ten instances. The method advocated attempts to send an impulse from brain to muscle by establishing through such partially destroyed centers a new route which it tends to find for itself by constant repetition of attempted muscular contraction. Not only is the opening of new paths for efferent impulses highly desirable, but also the repeated contraction of each weakened muscle is of therapeutic value.

The order is given to use a certain muscle and, if necessary, the patient is aided by the surgeon in performing the prescribed movement. This is repeated several times at intervals of a few seconds but never to the point of fatigue. In the stronger muscles the movement should be performed without assistance by putting the limb in a position which gives a favorable leverage for the motion. Muscle training is harmful if inaccurately carried out, because a child inevitably tries to use the strong muscles in any movement rather than the weak, and if they are continually exercised they become stronger while the weak remain as they were and the muscular balance is made worse and deformity results. This is one reason why an accurate muscular diagnosis is so essential. More than this, a knowledge of functional anatomy is required on the part of the one who prescribes the exercise. This required knowledge is not, as a rule, possessed by the ordinary masseur or masseuse, and the formulation of

the exercises must be done by the physician or by a highly trained assistant.

The chief obstacle to the successful employment of this treatment is to make it understood that it cannot be successfully carried out without a precise knowledge and special training which is not common. The benefits of muscle training may be obtained at a late stage of the affection, in one recorded case a gain of 125 per cent. in the gluteus medius muscle having been obtained in a period of six weeks, thirty-six years after the attack.

SUMMARY

The requirements of the modern treatment of the convalescent stage of infantile paralysis as advocated in this paper may be thus summarized:

An accurate muscular diagnosis is an essential prerequisite to treatment.

No active treatment should be begun until tenderness has disappeared.

The upright position with restricted walking has certain advantages over prolonged inactivity in suitable cases. Fatigue is dangerous.

Braces are conservative and protective, and not therapeutic.

Massage, electricity and muscle training are the measures in general use to bring about improvement in the muscles. Of these, the last named rests on the best physiologic and pathologic basis, and must be carried out with great accuracy to be effective.

234 Marlboro Street.

AN UNUSUAL BLOOD CRISIS IN HEMOLYTIC ICTERUS

W. ALLAN, M.D.
AND
R. F. LEINBACH, M.D.
CHARLOTTE, N. C.

Hemolytic icterus has been so extensively discussed recently that only the salient features of the disease will be mentioned. In 1900 Minkowski[1] first singled out chronic hemolytic icterus, and several years later Chauffard[2] discovered the characteristic increased fragility of the red blood cells in hypotonic salt solutions. The brilliant results following splenectomy in this disease, as first pointed out by Banti,[3] have given a new interest to the study of chronic jaundice.

Chronic hemolytic icterus, or chronic family jaundice, is ordinarily hereditary, passing to successive generations through either the male or the female line, and is generally familial, many children in the same family or generation being afflicted. There are other instances, such as the one cited here, in which a single isolated congenital case appears. Finally hemolytic icterus may be acquired in adult life following some acute illness.

The jaundice dates from birth, or is noticed during childhood, and remains throughout life. The nutrition and growth of these subjects is unimpaired, and there are none of the disagreeable manifestations which accompany obstructive jaundice, such as pruritus, bradycardia and melancholia. Enlargement of the spleen is almost constantly present, and when this is very marked produces discomfort mechanically. Enlargement of the liver is unusual. Besides the jaundice and splenic tumor, there is present a varying grade of anemia with normal color index. The urine and blood plasma show the presence of urobilin[4] with the absence of bile salts. The red blood cells are less resistant to hypotonic salt solutions. The feces show urobilin and are highly colored, in contradistinction to the light color in obstructive jaundice.

Clinically these subjects do not consider themselves ill, except during their "bilious attacks," when the jaundice deepens, the spleen enlarges, and the anemia increases. These attacks of acholuric jaundice, depending on critical hemolysis, occur every few months or every year or so. After headache for a number of days, nausea and vomiting, with possibly diarrhea, supervene. There is no pain in the absence of gallstones, and usually no fever. Within a week or two the patient is in his usual state of health.

We have recently seen one of these attacks of acholuric jaundice of such severity as to produce a profound and unusual blood crisis:

REPORT OF CASE

J. D. G., man, aged 25, white, married, waiter, seen, Nov. 9, 1916, with Dr. Reid Patterson, to whom we extend thanks for the privilege of reporting the case, had been having headache for three days previous to November 5, when he fainted with blindness and weakness. November 6, 7 and 8, he had had steady nausea and vomiting without pain, and without temperature above 99.6 by axilla. On the morning of November 8, somnolence set in, and when he was seen on the afternoon of November 9, this had become deep stupor. The temperature was 101 by axilla, pulse 126, respiration 30. Whitening of the mucous membrane and deepening of the jaundice had progressed steadily. The man was well nourished, with white mucous membranes and finger nails, and bright lemon colored skin and sclerae. The eyes, throat, heart, lungs, glands and reflexes were negative. The abdomen was soft, and the liver dulness normal. The spleen was four fingerbreadths below the costal margin.

The patient had been persistently jaundiced since 6 years of age; none of his relatives had been so afflicted. His past history brought out only these "bilious attacks," recurring once or twice a year, and an indefinite attack of malaria five years previously. The blood examination revealed: hemoglobin, 30 per cent. (Tallqvist), with 520,000 red cells and 19,600 white cells. The differential count revealed polymorphonuclears, 82 per cent.; small mononuclears, 14.5 per cent.; large mononuclears, 3 per cent.; eosinophils, 0.5 per cent.; no plasmodia. The red cells were of good color with little variation in size, shape or staining reactions. No blasts could be found. Platelets were plentiful. The bleeding time was diminished. The color index was 2.9.

The next day the stupor was clearing up and the temperature varied from 100 to 102. November 11, the patient was mentally clear, taking food, and desirous of returning home. The urine was negative for albumin, sugar, bile and urobilin (ether extract, alcohol method). Hemoglobin was 25 per cent. (Tallqvist). The red cells hemolyzed after standing several hours in the mixing pipet. The white count was 95,000; polymorphonuclears, 67.5 per cent.; small mononuclears, 17 per cent.; large mononuclears, 3.5 per cent.; eosinophils, 0 per cent.; neutrophilic myelocytes, 12 per cent.; eosinophilic myelocytes, 0 per cent.; no plasmodia. The individual red cells were of good color, with little variation in size and shape, but basophilic staining marked. There were 33,000 erythroblasts per cubic millimeter, one third being macroblasts. The spleen now filled the whole left upper quadrant, being 11 cm. below the costal margin.

November 12, the patient was mentally clear, took food well, and was anxious to return to work. The temperature

1. Minkowski, O.: Verhandl. d. inn. Med., 1900.
2. Chauffard, A.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1901, **18**, 444; Semaine méd., 1907, **27**, 25.
3. Banti, referred to by Elliott, C. A., and Kanavel, A. B.: Surg., Gynec. and Obst., 1915, **21**, 21.
4. Tileston, W., and Griffin, W. A.: Am. Jour. Med. Sc., 1910, **139**, 847.

was declining, the jaundice clearing somewhat. Hemoglobin was 45 per cent. (Tallqvist); red cells, 760,000; white cells, 67,000; polymorphonuclears, 87 per cent.; small mononuclears, 8 per cent.; large mononuclears and eosinophils, 0 per cent.; neutrophilic myelocytes, 5 per cent.; no plasmodia. There was considerable variation in size, shape and staining reactions of the red cells. There were 26,364 blasts per cubic millimeter. The ratio of normoblasts to macroblasts was 18:1. Clotting time was reduced one fourth.

November 13, the temperature was normal, the white count 12,000. There was no urobilinuria (Ehrlich's test).

November 14, the white count was 11,800; polymorphonuclears, 63 per cent.; small mononuclears, 32 per cent.; large mononuclears, 0 per cent.; eosinophils, 5 per cent.; myelocytes, 0 per cent.; blasts, 826 per cubic millimeter; no macroblasts. The red cells showed little variation in size and shape, and but slight polychromatophilia.

November 15, the red count was 1,200,000. Fragility tests with whole blood revealed hemolysis starting definitely at 0.72 per cent. and being complete at 0.38 per cent. salt solution in two hours. Stained smear revealed 1 per cent. myelocytes with 9 normoblasts per hundred white cells. There were no macroblasts. The hemoglobin was 35 per cent. Although weak, the patient refused to remain longer in the hospital.

December 3, the patient reported that he was a little weak in the knees yet, but felt fine. He had gained 10 pounds, and his jaundice was so slight as not to be noticeable without close examination. The hemoglobin was 70 per cent.; red count, 3,040,000; color index, 1.3; white count, 11,650; polymorphonuclears, 64 per cent.; small mononuclears, 22 per cent.; large mononuclears, 3 per cent.; eosinophils, 9 per cent.; basophils, 2 per cent.; no myelocytes, no nucleated reds; great variation in size and shape of red cells, but no basophilia.

December 9, the hemoglobin was 75 per cent., and the red count 4,000,000.

SUMMARY OF BLOOD COUNTS

Cases	Hemoglobin	Red Cells	Color Index	White Cells	Differential Count: Polymorphonuclears	Small Mononuclears	Large Mononuclears	Eosinophils	Neutrophilic Myelocytes	Myeloblasts	Erythroblasts	Normoblasts	Megaloblasts
Authors:													
Nov. 9.....	30	820,000	2.9	19,600	82	14.5	3	0.5	..	..	.....	..	..
Nov. 11.....	25	.....	..	95,000	67.5	17	5.5	..	12	..	23,000	66	33
Nov. 12.....	45	760,000	2.9	67,000	87	8	..	..	5	..	26,364	95	5
Nov. 13.....	..	.....	..	12,000	..	..	..	..	..	..	.....	..	..
Nov. 14.....	..	.....	..	11,800	63	32	..	5	..	..	826	100	..
Nov. 15.....	35	1,200,000	1.5	.....	..	..	..	..	..	..	.....	100	..
Dec. 3.....	70	3,040,000	1.3	11,650	64	22	3	9	..	..	.....	..	..
Dec. 9.....	75	4,000,000	0.9	.....	..	..	..	..	..	..	.....	..	..
Leube's.....	..	266,000	..	10,000	44	40	2	..	12	..	Present	..	70
Teeter's: 6th day.	30	1,530,000	0.7	132,800	59	19	4	..	10	..	20,000	90	10
9th day.	70	1,530,000	0.7	36,000	56	20	14	1	5	..	10,800	94	3
Luce's.....	30	1,200,000	1.2	81,000	46	4	..	..	..	40	.....	..	..
Bappington's:													
Nov. 28.....	18	1,200,000	0.8	7,800	22	66		0.8	..	12	3,356	38	62
Dec. 26.....	14	850,000	0.8	162,000	0.2	3.6		..	..	87.2	18,987	58	42
Dec. 29.....	..	1,050,000	..	298,000	4.2	7.2		..	..	88.6	29,234	40	60

LEUKANEMIA

Based on quantitative relationships of the cellular elements of the circulating blood, the blood diseases have been more or less satisfactorily divided into (*a*) the anemias, in which reduction in number and alteration in character of the red cells are characteristic, and (*b*) the leukemias, in which increase in the normal white cells and the appearance of abnormal white cells are dominant findings.

This distinction has served a useful purpose, and is *a priori* reasonable since, for the most part, pathologic agencies, bringing about alterations in the cellular elements of the blood, are either hemolytic, affecting the red cells, or productive, exerting a selective action on the primary leukoblastic tissues. From clinical reports, however, which have appeared from time to time, it is becoming increasingly evident that a combination of these two influences may exist in one and the same case, simultaneously or consecutively. The apparent result of such combined action is to be seen in cases presenting the red count of pernicious anemia and the white count of leukemia. Such findings are not unusual as a terminal event in both pernicious anemia and the leukemias. The difficulty of classifying cases with such a combined blood picture led von Leube to suggest the term "leukanemia." He reported this combined picture in a boy of 10 who suffered apparently from a combination of myelogenous leukemia and pernicious anemia, running a very acute course of about three weeks, with clinical symptoms of an acute infectious disease with hemorrhages (Teeter).[5] The blood showed a red count of 266,000, with 10,000 leukocytes; polymorphonuclears, 44 per cent.; lymphocytes, 40 per cent.; neutrophilic myelocytes, 13 per cent.; large mononuclears, 2 per cent., and many nucleated reds, 70 per cent. of which were megaloblasts. At necropsy the bone marrow was found hyperplastic and red, with myeloid changes in spleen and liver.

Teeter[5] reports a case similar to ours:

A girl, aged 6 years, was taken suddenly ill with malaise, nausea, headache and fever. The second day there was vomiting and fever, no chill, no pain, but great restlessness. The third day she passed a pint of bloody urine and became very anemic and slightly jaundiced. On the fourth day there was a pericardial friction sound, enlargement of liver and spleen, delirium, no vomiting, and neither blood nor bile in the urine. The blood showed hemoglobin, 20 per cent.; red cells, 1,530,000; white cells, 132,000, with 20,000 nucleated red cells per cubic millimeter, 10 per cent. of which were megaloblasts; polymorphonuclears, 58.75 per cent.; small and large lymphocytes, 19.5 per cent.; unclassified, 6 per cent.; mononuclears and transitionals, 4.25 per cent.; basophils, 0.5 per cent.; myelocytes, 10.75 per cent., and Tuerck's cells, 0.25 per cent. By the ninth day the temperature had become nearly normal and the child was much better, the blood showing hemoglobin, 20 per cent.; red cells, 1,500,000; white cells, 36,000, with 5 per cent. myelocytes and 10,000 nucleated red cells, of which 3 per cent. were megaloblasts. Within two weeks the patient was rapidly approaching normal again.

The term "leukanemia" has also been applied to conditions in which the combined blood picture of pernicious anemia and lymphatic leukemia was present.

Luce's case showed a blood picture of hemoglobin, 30 per cent.; red cells, 1,200,000; white cells up to 81,000, with polymorphonuclears, 46 per cent.; large lymphocytes and nongranular myelocytes, 49 per cent., and small lymphocytes, 4 per cent. (Teeter).

5. Teeter, C. E.: Recovery from Leukanemia, THE JOURNAL A. M. A., Feb. 16, 1907, p. 608.

Sappington[6] reports the case of a man, aged 46, who after anemia for six months entered the hospital with hemoglobin, 18 per cent.; red cells, 1,130,000; white cells, 7,800. The differential count revealed: polymorphonuclears, 22 per cent.; lymphocytes, 66 per cent.; eosinophils, 2 per cent.; myeloblasts, 11.8 per cent. There were 3,356 erythroblasts, of which 62 per cent. were megaloblasts. The temperature ranged from 99 to 101. Death occurred three weeks later, with red cells, 1,030,000; white cells, 298,000; myeloblasts, 88 per cent.; nucleated red cells, 29,334; megaloblasts, 60 per cent. The diagnosis was acute myeloblastic leukemia.

It is interesting to find in hemolytic blood disease, such as the case here reported, this combined blood picture of pernicious anemia and myeloid leukemia occurring as a so-called "blood crisis." Although transitory, the picture of "leukanemia" was perfect in every detail. As the usual paroxysm of hemolysis in these chronic jaundice cases is either a good deal less rapid or less intense, the unusual blood crisis seems to have been dependent on the rapidity of the hemolysis or on the extent to which the red cells were destroyed.

THE NUTRITIONAL VALUE OF THE BANANA *

VICTOR C. MYERS, PH.D.
AND
ANTON R. ROSE, PH.D.
NEW YORK

That fruits are entering the dietary of man in this country more largely than ever before has been pointed out editorially in THE JOURNAL.[1] This is of particular interest in view of the increasing importance that is being attached to the rather intangible "accessory food substances" in which fruits are supposed to be especially rich. It was with these facts in mind that a study of the ripening, composition and digestibility of the banana was undertaken. Fruits are frequently looked on primarily from the standpoint of the accessory substances they contain; but it is well to bear in mind in the case of the banana that its caloric value is very high, in fact higher than that of any other common fruit in its natural state. Furthermore, bananas may be readily obtained at any time of the year, and at a cost per calory about half that of other fruits. The condition in which fruits are sold in many of our great cities is certainly far from sanitary, but the peel of the banana affords it almost complete protection in this respect. The banana has been called "the poor man's fruit," and the facts mentioned above would appear to justify this appellation.

Our nutritional studies on the banana indicate that, when thoroughly ripe, it is one of our most valuable fruits; but there are many other reasons why this subject commands interest from a physician's point of view. Our experience indicates, for example, that bananas may be used to advantage in the dietaries of nephritic patients showing nitrogen retention, for the reason that ripe bananas contain small amounts of protein and large amounts of readily assimilable carbohydrates (glucose, fructose and sucrose). The fact that the banana yields these different sugars is of considerable interest for, as Higgins[2] has pointed out, levulose and sucrose appear to be burned more promptly when taken on an empty stomach than glucose, suggesting that they play a slightly different rôle in metabolism.

Raw fruits can be consumed to advantage only when they are thoroughly ripe, and the banana is certainly no exception to this rule. Perhaps the worst criticism that can be made with regard to bananas is that they are frequently sold and eaten when they are not thoroughly ripe. This is in part due to a popular misconception that bananas should not be eaten after the appearance of brownish tints on the peel. The yellow color of the skin is not in itself sufficient evidence of ripeness; in fact, under certain climatic conditions the fruit may be entirely yellow and still be so underripe that its consumption in large amounts would be followed by discomfort. When the yellow of the peel takes on a golden hue and begins to speckle with brown

TABLE 1.—CHANGES IN THE COMPOSITION OF THE BANANA DURING RIPENING *

Days off Boat	Relation of Peel to Pulp	Appearance of Peel	Reducing Sugar in Terms of Glucose	Sucrose in Terms of Glucose	Total Sugar in Terms of Glucose	Starch in Terms of Glucose
2	40	Very green	0.55	1.20	1.75	
4	38.5	Greenish yellow with pea green tip and edges, bitter flavor	1.17	4.60	5.77	15.62
6	33.5	Yellow except extreme edges and tip, beginning of golden yellow, bitter flavor almost gone	2.86	12.32	15.40	7.53
8	31.5	All yellow except extreme of tip, greenish cast to edges	4.09	11.91	16.00	5.02
12	26.1	Golden yellow, greenish cast on edges, occasional brown specks, no herbaceous flavor	5.35	11.72	17.07	
14	25.7	Full golden yellow with brown specks, strong amyl acetate flavor	6.88	11.72	18.60	2.02
15	25.5	Patches of light brown shades	7.08	11.30	18.78	0.71
16	20.6	Largely light brown (incubated 24 hours)	9.09	7.91	17.00	0.00

* The rate of the several ripening processes appears to differ somewhat with the season. The present analyses were made during the winter months. Other analyses show that ripening proceeds more rapidly and more completely during the summer. For further details the reader is referred to Gore, H. C.: Jour. Agric. Research, 1914, **3**, 187.

TABLE 2.—COMPARATIVE COMPOSITION OF SOME COMMON FRUITS *

Fruit	Protein, per Cent.	Fat, per Cent.	Carbohydrate, per Cent.	Calories per Pound	100 Calory Portion, Gm.
Bananas	1.3	0.6	22.0	447	101
Grapes	1.3	1.6	19.2	437	104
Plums	1.0	...	20.1	383	118
Cherries	1.0	0.8	16.7	354	128
Pears	0.6	0.5	14.1	288	158
Apples	0.4	0.5	14.2	285	159
Oranges	0.8	0.2	11.6	233	195
Peaches	0.7	0.1	10.8	213	213
Lemons	1.0	0.7	8.5	201	226
Muskmelons	0.6	...	9.3	180	252
Strawberries	1.0	0.6	7.4	169	269
Watermelons	0.4	0.2	6.7	136	332
Potatoes	2.2	0.1	18.4	378	120
Sweet potatoes	1.8	0.7	27.4	558	81

* Taken from data compiled by Sherman, H. C.: Chemistry of Food and Nutrition, New York, 1912, p. 319; from Bull. 28, Office of Exper. Stations, U. S. Dept. Agriculture.

6. Sappington, S. W.: Am. Jour. Med. Sc., 1916, **152**, 238-243.

* From the Laboratory of Pathological Chemistry, Department of Laboratories, New York Post-Graduate Medical School and Hospital.

1. The Ripening of Apples, editorial, THE JOURNAL A. M. A., Feb. 26, 1916, p. 657.

2. Higgins, H. L.: Am. Jour. Physiol., 1916, **41**, 258; The Rapidity with Which Sugars Become Available for Metabolism, editorial, THE JOURNAL A. M. A., Oct. 28, 1916, p. 1306.

shades, it may safely be considered fully ripe. The spread of the brown coloration does not condemn the fruit as overripe so long as the pulp inside shows no signs of fermentative decomposition.

Somewhat more definite information on this point may be obtained from Table 1, showing the composition of the banana at various stages of ripeness. It will be noted that with the progressive increase in the sugar content of the banana, water is gradually absorbed from the peel, and that the percentage of the peel is therefore an excellent index as to its ripeness.

From an inspection of Table 2 it is apparent that bananas are decidedly superior to most of the other common fruits from the standpoint of their caloric value, and not inferior in other respects except possibly in mineral constituents (Table 3). In fact, as regards caloric content the banana is directly comparable with the potato and sweet potato.

The only criticism that can be made regarding the composition of the banana has to do with its salt content. Relative to the calcium the content of magnesium is high. High figures are also found for potassium and chlorin. It will be noted, however, that this relationship is similar to that found in the potato, except that here the magnesium and potassium are combined with phosphorus rather than with chlorin. The high chlorin content would be a possible objection to the use of bananas in quantity in cases of nephritis with edema, but it is generally just this type of case in which the nitrogen retention is low, and there is no great necessity for a restriction in the protein intake. It is of interest that both the banana and the potato yield an alkaline ash and are therefore antagonistic to the development of an acidosis.

As will be noted in Table 4, the utilization of the carbohydrates of the ripe raw banana is excellent — about as good as that of the cooked foods employed in the controls. On account of the lower fat content of the diet on the banana days, more carbohydrate was used to obtain a similar caloric intake. An idea of the type of diets employed may be obtained from Diet 2, given in Table 5. Both the control and the banana diets were given for three days or more.

For the various carbohydrate estimations, both in the banana and in the feces, the simple colorimetric

TABLE 3.—ASH CONSTITUENTS OF SOME COMMON FRUITS*

Fruit	Ash Constituents of Fruits in Percentage of the Edible Portion							
	CaO	MgO	K_2O	Na_2O	P_2O_5	Cl	S	Fe
Bananas	0.01	0.04	0.50	0.02	0.055	0.20	0.012	0.0003
Grapes	0.024	0.014	0.25	0.02	0.12	0.01	0.024	0.0013
Plums	0.025	0.02	0.75	0.03	0.055	0.01	.....	0.0005
Cherries	0.03	0.027	0.26	0.02	0.07	0.01	.....	0.0005
Pears	0.021	0.019	0.18	0.03	0.08	.....	.....	0.0003
Apples	0.014	0.014	0.15	0.02	0.02	0.004	0.005	0.0003
Oranges	0.06	0.02	0.22	0.01	0.05	0.01	0.013	0.0003
Peaches	0.01	0.02	0.25	0.02	0.047	0.01	0.01	0.0003
Lemons	0.05	0.01	0.21	0.01	0.02	0.01	0.012	0.0003
Muskmelons	0.024	0.02	0.283	0.082	0.055	0.041	0.014	0.0004
Strawberries	0.05	0.03	0.18	0.07	0.064	0.01	.....	0.0049
Watermelons	0.02	0.02	0.09	0.01	0.02	0.01		
Potatoes	0.016	0.038	0.53	0.025	0.14	0.01	0.03	0.0013
Sweet potatoes	0.025	0.02	0.47	0.06	0.09	0.12	.....	0.0005

* Sherman, H. C.: Chemistry of Food and Nutrition, p. 332.

TABLE 4.—UTILIZATION OF THE CARBOHYDRATE OF THE BANANA

Subject	Age	Sex*	Clinical Diagnosis	Period	Carbohydrate Intake, Gm.	Carbohydrate in Feces, in Terms of Glucose		Apparent Carbohydrate Utilization, per Cent.	Remarks
						Per Cent.	Gm.		
1. A. B.	..	♂	Normal	Control	266	1.6	1.2	99.6	
				Banana	334	4.1	4.2	98.8	
2. F. C.	7	♂	Physiologically normal	Control	210	1.8	4.1	98.1	
				Banana	370	2.8	5.6	98.3	
				Control	210	1.5	2.6	98.8	
3. A. R.	7	♀	Rheumatism with valvular lesion	Control	210	1.4	3.1	98.5	
				Banana	220	2.8	8.6	97.3	
				Control	210	1.2	3.2	98.7	
				Banana	270	2.8	7.0	96.8	
4. S. T.	37	♂	Duodenal ulcer	Control	185	1.0	0.4	99.8	
				Banana	261	1.3	0.5	99.8	
5. M. R.	47	♂	Nephritis	Control	154	1.2	2.6	98.3	Carbohydrate utilization practically the same during banana periods as during control periods
				Banana	180	0.8	2.9	98.4	
				Banana	180	2.4	5.0	98.4	
6. C. C.	30	♂	Tuberculosis	Control	185	0.5	1.2	99.3	
				Banana	261	1.9	5.6	97.9	Note the improvement in the utilization of the banana as the fruit became more ripe; better than controls in Period 4
				Banana	261	1.1	2.3	99.1	
				Banana	261	2.9	6.0	99.7	
				Control	185	0.5	1.9	99.0	
7. R. V.	60	♂	Cardionephritis	Control	154	0.8	0.6	99.6	
				Banana	180	1.6	1.3	99.4	
8. J. O.	43	♂	Cardionephritis	Control	216	0.5	1.1	99.6	
				Banana	165	0.9	1.4	99.3	
				Control	154	1.4	5.4	98.3	
				Control	154	0.9	6.6	95.7	The poorer utilization of the carbohydrate in Control Period 4 and Banana Period 5 was due to diarrhea
				Banana	180	2.4	8.2	95.8	
				Banana	180	1.6	3.5	98.2	
9. K. F.	54	♀	Acute rheumatism	Control	154	1.9	0.8	99.5	Patient constipated, particularly so during control period
				Banana	180	2.3	2.9	98.6	
10. H. M.	54	♂	Cardionephritis	Control	185	...	1.8	99.0	
				Banana					
				Yellow	261	...	13.5	95.0	
				Golden	261	...	7.8	97.0	
11. G. S.	49	♂	Nephritis	Control	185	2.3	3.7	98.0	Note poor utilization with partially ripe fruit
				Banana					
				Golden	261	2.3	2.4	99.2	
				Yellow	261	6.6	12.6	95.7	

* In this column ♂ denotes male and ♀ female.

method employed by Lewis and Benedict[3] for blood sugar was utilized in somewhat modified form. A description of the technic used in this connection will be given elsewhere.

It is a well known fact that raw starch is poorly utilized, and it seems evident from the data in Table 4 that banana starch is no exception to this rule, since with thoroughly ripe fruit much less starch is present in the stools, microscopically as well as chemically. That considerable starch may be excreted in the feces when the bananas are not fully ripe is evident from the data on Subjects 10 and 11. It may be noted that the bananas sold in the market are frequently less ripe than the fruit employed in these two experiments. When bananas are fully ripe, however, the utilization of the carbohydrate is excellent.

One subject consented to take unripe bananas, but at the end of the second day suffered considerable discomfort and discontinued the experiment, unfortunately without saving the stools for analysis. In none of the experiments here tabulated, however, with the possible exception of Case 3, were any discomfort or ill effects noted from the banana diet, and the same might be said of a larger number of experiments not reported. On the last day in Case 3 there was a distaste for the bananas, and they were consumed only after urging. Subject 1 lived on a bread and milk diet for one week and on bananas and milk for a similar period. The subjective sensations experienced were much more favorable to the banana and milk than to the bread and milk diet.

TABLE 5.—DIET 2

Control Diet 2	Grams or C.c.	Calories	Starch, Gm.	Protein, Gm.
Morning:				
Cooked cereal	150	93	19.2	2.75
Bread	70			
Milk	200			
Noon:				
Cream soup	200	199	15.7	6.50
Baked potato	200	225	51.2	5.44
Bread	20			
Cocoa (½ water and ½ milk)	200	125	....	3.20
Evening:				
Steamed rice	100	87	19.1	1.84
Bread	20			
Milk (½ 18.5 per cent. cream)	300			
Corn starch blanc mange	150	199	33.6	4.34
		928	138.8	23.87
For the day in bread		233	47.4	8.27
milk		503	.....	18.8
butter and sugar		710		
		1,964	186.2	51.0
Banana Diet 2				
Soup, bread, butter and sugar as above, 300 c.c. milk for the morning and 300 c.c. for the evening, and 300 gm. of mashed ripe bananas with each meal				
Parts as above		567	63.1	31.1
Bananas, 900 gm.		979	198.0*	13.5
		1,566	261.1	44.6

* Total carbohydrate.

SUMMARY

Bananas have a higher caloric value than any of our other common fruits. Unlike most other fruits, they are always in season.

When fully ripe, that is, when the starch has been almost completely changed to sugar, the experiments here reported show that the carbohydrates of the banana are well absorbed from the intestine. As sold in the market, however, bananas are frequently not sufficiently ripe to be consumed to advantage immediately; and it would seem that gastro-intestinal disturbances when attributed to the banana were referable to this cause. It may be said in general regarding our own experiments that no ill effects, discomfort or distaste were noted even after the consumption of large quantities of the ripe fruit for several days.

Much larger quantities of sugar (glucose, sucrose, levulose) may be given in the form of banana than as pure sugar (sucrose, glucose) without producing gastro-intestinal disturbances.

The composition of the banana and the potato shows an interesting similarity both as regards total carbohydrate and the amounts of the different mineral constituents. While the banana can hardly be regarded as a potato substitute, the fact that it has practically the same caloric value as the potato is worthy of note.

Of even greater importance is the fact that bananas may be eaten uncooked. This is of interest in view of the increasing significance that is being attached to the thermolabile "accessory food substances."

The banana would appear to be a particularly valuable food to employ in the dietetic treatment of nephritic patients with nitrogen retention. Very satisfactory results have been obtained in the rather mild cases of nephritis here reported. So long as the patients exhibit no distaste for the fruit, there would seem to be no reason why bananas should not be employed in considerable quantity. We hope to report in the near future results obtained with this form of diet in cases of advanced nephritis.

3. Lewis, R. C., and Benedict, S. R.: Jour. Biol. Chem., 1915, **20**, 61. Myers, V. C., and Bailey, C. V.: Ibid., 1916, **24**, 147.

MODE OF ABSORPTION OF MERCURY IN THE INUNCTION TREATMENT OF SYPHILIS

PRELIMINARY REPORT *

UDO J. WILE, A.B., M.D.
Professor of Dermatology and Syphilolgy, University of Michigan Medical School
AND
JOSEPH A. ELLIOTT, A.B., M.D.
Instructor in Dermatology and Syphilology, University of Michigan Medical School
ANN ARBOR, MICH.

The question as to the efficiency of inunctions and just how they exert their effect is an old one. There are those who believe that mercury in an appreciable quantity is rubbed into and through the skin, and thus produces its therapeutic effect, and those who teach that the therapeutic value lies chiefly, if not solely, in its volatilization and in its inhalation through the respiratory system. A third conception accepts both absorption and inhalation as occurring. In the light of investigation this is the most probable view.

Let us consider the facts which bear directly on these opposing views. Those who oppose the idea that mercury can be pushed through the unbroken skin contend that:

The skin is an impervious membrane covered by an impervious protective waxy substance.

It is essentially an excretory organ, and the physical forces operating within it, namely, the excretion of the sweat and sebum, would be against the absorption of any foreign substance.

* President's address, read before the Chicago Dermatological Society, Jan. 16, 1917.

The intercellular epithelial bridges and the basement membrane furnish in the unbroken skin an impassable barrier to the absorption of a heavy metal, even so finely divided as is mercury in the form of a salve.

It is impossible to say after a thorough inunction that the skin has not been traumatized so that it is histologically unbroken.

Absorption, if it occurs through the skin, does so through breaks in its continuity.

The advocates of the volatilization theory point further to the facts that:

Mercury, having a high vapor pressure, is easily volatilized. For this reason it is spread over a warm surface and over a large surface so that it may be more easily vaporized.

The form of mercury which is used, the mercurial ointment (unguentum hydrargyri), is that form which is most volatile.

Occasionally those who are in the same rooms in which inunctions are given have been known to be mercurialized to the point of salivation.

Those who believe in the absorption of mercury through the skin advance in favor of this view that:

Other substances, such as lithium, sodium borate and iodin, after application on the skin, have been found in the urine.

The cells of the epidermis do not form a barrier to the absorption of mercury.

The basement membrane is not a homogeneous structure.

Following inunction, mercury has been found in the sebaceous glands and in the ducts of the sweat coils, from which absorption into the lymphatics would easily be possible.

The results of experiments with other substances applied to the surface of the skin, in which such substances have been found in the urine and feces, are not conclusive evidence of the absorption through the unbroken skin. In this connection it may be mentioned that whereas such substances as sodium borate and lithium have been found in the urine by certain investigators, others of equal ability have failed to find them. The immersion of the hand or foot in a fluid substance containing a chemical, and the detection thereafter of the chemical substance in the urine is not conclusive evidence that this substance has passed through an unbroken epidermis. The feet and hands are practically invariably traumatized. The slightest break in the skin in the form of a fissure or a cut, however small, leads to a degree of absorption far greater than would be possible through the unbroken skin if this membrane could really absorb.

No one will deny that mercury, a drug with a high vapor pressure, can be and probably is to a certain extent absorbed and active therapeutically by inhalation. In this connection one has merely to recall that the oldest treatment, antedating even the inunction, is the volatilization or inhalation of mercury vapor, so extensively practiced in the latter part of the fifteenth century with the outbreak of epidemic syphilis in Europe.

Much of the previous experimental work is open to two criticisms: Those who have attempted to prove the volatilization theory have confined their efforts to the most volatile of the mercurial compounds, and in the experiments tending to prove the absorption of foreign substances through the skin, the skin may not have been unbroken. It seemed an opportune time, therefore, to attempt to settle this question if possible along new lines of experimentation. We have attacked the problem with entirely open minds, and have sought scientific data which might bear on its solution.

Before submitting the results of our investigations, mention must be made of the exhaustive and excellent work of Welander. This work, more than any other, forms the basis for the view that the therapeutic effect of mercurial inunction is dependent on volatilization. The observations of Welander are so important that we present them somewhat in detail. His investigation extended over several years and included the study of several thousand patients. For the most part he accepted the elimination of mercury in the urine as the index of absorption. In only a few cases did he investigate the blood and feces. He found that the nature of the fatty vehicle did not materially affect the degree of absorption. He found that a salve in which one part of mercury was combined with two parts of fat was best adapted for the purposes of inunction. Welander established that, even with prolonged rubbing, only from 2 to 3 gm. of mercurial ointment could be rubbed into any given site of the usual size selected for inunction. He found that a greater degree of absorption occurred when a certain amount of free ointment was left on the anointed surface; that as great a degree of absorption occurred when the ointment was merely smeared on the skin instead of being rubbed into it, and that if the excess of mercury on an anointed surface was wiped off with soap and water, the degree of absorption was less than if the excess mercury was allowed to remain. In several cases in which mercury had never been taken in any form, Welander found mercury in the urine, and in one case a mercurial stomatitis after such a patient had lived in an ill ventilated room with others taking the inunction cure. He found mercury constantly in the urine of those giving inunctions to others, even when the inunctions were given with the hand covered by a glove. By spreading mercurial salve on a waxed paper and on gutta percha tissue, and by placing such prepared plasters on the skin surface, Welander detected mercury in the urine when no mercury came into contact with the skin.

On the basis of his experiments, Welander believes that the largest part of mercury which is smeared on the skin is absorbed as the result of its volatilization, and this fact led him to advocate smearing the skin with mercury rather than anointing it, as is customarily done. He concludes: Mercury is absorbed through the skin to a certain extent. By smearing the skin with mercury, volatilization occurs which gives rise to a very marked degree of absorption. A comparison of the simple inunction and the simple smearing on of the ointment shows a constantly greater degree of absorption in the latter. The dosage of mercury applied to the skin should be much larger than could possibly be pushed through, to allow for the absorption through inhalation.

In analyzing Welander's work, it is to be noted that his experiments were done solely with pure mercury in the form of an ointment, in which the drug is most volatile. It occurred to us that if we could attempt a series of experiments along the lines of those of Welander, but using salts of mercury of a lower vapor pressure, that is, those which are relatively nonvolatile, we might thus have a more adequate proof of the absorption of mercury through the skin. For example, if we could find mercury in the urine of a patient who was anointed with mercuric salicylate, it would be presumptive proof that mercury was absorbed through the skin rather than by volatilization, as this salt does not break up into metallic mercury except when dissociated by a great degree of heat. The same, then, might be done with the mercuric oxids, which are relatively stable, the oleate of mercury, the sulphate and the

nitrate, all of which release metallic mercury only when decomposed by heat. We have done our experiments with some of these salts of mercury, using as a guide to their absorption the elimination of mercury in the urine. At first we believed that the blood would offer us a more satisfying and conclusive medium in which to detect mercury. For some time we tested out the mercurial content of blood in from 10 to 20 c.c. by decomposing the blood after the method of Willard and Laws. Later we abandoned this in favor of the urine in view of the greater ease with which mercury is detected in the urine.

METHODS

Many tests have been advocated for the detection of mercury in the urine, chiefly as a means of detecting the drug in cases of poisoning. Before embarking on the actual experimentation we investigated several of these methods with a view to ascertaining that one which at one time commended itself for simplicity and for delicacy of result. The principle embodied in most of the methods which we employed consisted in the deposition of mercury on copper. This is the basis of the Reinsch test, of the test advocated in 1912 by Vogel and Lee, and of numerous other qualitative tests for the detection of the drug. After considerable experimentation we finally resorted to three main methods. The first consisted in the simple addition of concentrated hydrochloric acid to the cold urine. In this mixture pieces of copper wire are allowed to remain about twelve hours, after which they are tested for mercury by heating the copper wire in a capillary tube and driving off the mercury on a bit of gold leaf, in which process the mercury is deposited on the gold leaf, forming an amalgam. The second process with which we experimented consisted in a concentration of the urine with the idea of making the test more sensitive, and at the same time adding sulphuric and nitric acid with the idea of destroying whatever organic matter might be present. We soon found that in the process of concentration by heat, a definite amount of mercury was lost, and we further found that the organic material in the urine in no way interfered with the detection of mercury, and it was not necessary, therefore, to destroy it. Lastly, we employed the method of Vogel and Lee, which embodies the concentration of the urine and the breaking up of organic matter by the addition of hydrochloric acid and potassium chlorate. This we found to be less sensitive, as was shown by our failure to detect a small amount of mercury in a known specimen by this method, and our ability to detect the same quantity by the simple method of adding hydrochloric acid to the cold unconcentrated urine.

After having determined, therefore, that the cold method, or the modification of the Reinsch test, which method will be described more in detail in a subsequent publication by Dr. Elliott, was the method of choice as embodying both simplicity and delicacy, we next sought to ascertain how small a quantity of mercury could be determined in solution by this method. For this experiment we added to normal urine known quantities of mercuric chlorid, and found that we could determine mercury as shown by the amalgamation from copper wire on gold in as small a quantity as 0.025 mg. per 300 c.c.[1]

Having determined, then, the sensitiveness of our test, we next began our experiments on the urine of patients who were receiving mercurial inunctions. The point to be determined was how soon after mercurial inunctions were given could mercury be found in the urine; in other words, to determine the rapidity of absorption. In a series of controlled experiments we found that with mercurial ointment, such as is customarily used in the inunction cure, mercury could be determined with a strongly positive test between twelve and twenty-four hours following the inunction.

As this point had been established, our next experiment concerned the detection of mercury in patients who were rubbed with mercurial salts other than the mercurial ointment. Our experiments in this connection were done with oleate of mercury, with red mercuric oxid, with yellow mercuric oxid and with mercuric salicylate. We had these preparations made in exactly the same strength, with the same vehicle which is used in the preparation of the official mercurial ointment.

The mercurial content should be considered in estimating the rapidity of absorption and the amount of mercury absorbed. The mercuric salicylate which we used contained 60 per cent., the red mercuric oxid 92 per cent., the yellow mercuric oxid 92 per cent., and the oleate 23 per cent. of metallic mercury. It is thus seen that the mercurial ointment contains a larger amount of metallic mercury than is found in the other salts.

RESULTS OF INUNCTIONS

1. *Mercuric Salicylate.* — Two patients who had never taken mercury before, and whose urine had first been tested for mercury, were anointed in the usual way with daily inunctions of 4 gm. of 50 per cent. ointment of mercuric salicylate. In both of these, mercury could be determined in the urine seventy-two hours following the inunction. The test was never as strongly positive as was found with the other salts of mercury. In other words, mercuric salicylate seems to be less easily absorbed, the elimination being used as an index, than the other salts which we investigated. This is interesting in connection with Dr. Schamberg's work on the absorption of mercuric salicylate from injections, in which he found that the salicylate was very slowly absorbed.

2. *The Mercuric Oxids.* — Two patients were anointed in the usual way with daily inunctions of 3 gm. of yellow mercuric oxid and red mercuric oxid in the form of 50 per cent. ointment. In the case of the yellow oxid a trace of mercury was found forty-eight hours after the first inunction and definitely seventy-two hours after. Mercury was found in the urine following inunction of the red oxid definitely in forty-eight hours. This experiment would seem to indicate a more rapid absorption of the red oxid over the yellow. Due allowance for such differences must be made in considering the individual cutaneous texture and the thoroughness with which the inunction was applied in each case.

3. *The Oleate of Mercury.* — Two patients were anointed in the usual way with daily inunctions of 4 gm. of a 50 per cent. ointment of the oleate of mercury. It required a lapse of seventy-two hours following the first inunction in both cases before mercury could be detected in the urine. It would seem, therefore, that the oleate of mercury has about the same rapidity of absorption as mercuric salicylate, and is not so rapidly absorbed as either the yellow oxid or the red oxid or the ordinary mercurial ointment.

1. By substituting copper dust for copper wire we made our test far more sensitive.

From these preliminary experiments we may conclude that following the inunction with relatively nonvolatile salts, such as were used herein, it was possible to detect mercury in the urine. It now remained to show that these salts were not volatilized at the ordinary body temperature and that their absorption occurred exclusively through the skin. For this experiment we placed the salves in pasteboard boxes which were tightly covered. On the under surfaces of the covers, but not coming into contact with the ointment, we fastened small pieces of copper wire. These boxes were then placed in a thermostat at 35 C. (95 F.) and left there for two days. In this way we tested out the volatilization of mercury outside of the body, but at approximately body temperature, of mercurial ointment, of ammoniated mercury, of the red and yellow oxids, of the oleate and of calomel. At the end of forty-eight hours the copper wire was placed in glass tubes, a small particle of gold leaf was placed at about 2 cm. distance, and the copper wire then heated as described before. Positive tests were found with the mercurial ointment and with the calomel and with the ammoniate. Negative tests were found with all the remainder.

From this experiment it may be concluded that of those salts tried, only those of the highest vapor pressure, namely, calomel, mercurial ointment and ammoniated mercury, are appreciably volatile at body temperature. This experiment may be regarded as presumptive evidence that the mercury detected in the urine following inunction with the nonvolatile salts, namely, the oxids, the oleate and the salicylate, was absorbed through the skin and not appreciably by volatilization.

If, therefore, mercurial salts are so easily absorbed through the skin, has the usual mercurial ointment, which has all the disadvantages of uncleanliness, any advantage over the cleaner nonvolatile compounds? In other words, is mercury appreciably absorbed by inhalation or diffusion through volatilization as carried out in the ordinary mercurial inunction?

To determine this we smeared the ordinary mercurial ointment and a 40 per cent. calomel ointment, respectively, on waxed paper. This was next covered with two or three layers of gauze, and the plaster thus made was then placed wax paper down on the chest of two patients, care being taken that no salve came into contact with the patient's body. In these experiments mercury was determined definitely in the urine in the case of calomel after ninety-six hours, although the application was made only during the night. In the case of the mercurial ointment, mercury was found in the urine after forty-eight hours. In our first experiment in which we used the mercurial ointment, we found the mercury within twelve hours after the application. In this case, however, it was found that the patient had had an injection of mercury six weeks previously. This was a very positive test, and throws an interesting light on the slow degree of absorption and elimination which takes place following injections. Our subsequent experiments were carefully controlled by first testing the urine before the experiment was done.

We next elaborated the volatilization experiment by placing near a bed patient a warm chamber in which mercurial ointment was kept at a temperature of about 35 C., the apparatus being constructed in such a way that the patient's face was close to the source of heat. As a further corollary to this experiment, small pieces of gold leaf were placed on colored glasses which the patient wore. Additional gold leaf was placed at distant points in the room in order to ascertain whether the mercury was diffused in the room in a sufficient quantity to amalgamate. In this experiment mercury was determined in the patient's urine within twenty-four hours after the experiment had begun. The gold leaf at distant points in the room was not amalgamated. In this connection, however, we found that when exposed to the air the mercury soon disassociated itself from the gold, and it may well be possible that the free mercury vapor in the room volatilized from the gold leaf about as fast as it could amalgamate.

A second experiment bearing on the absorption of mercury through volatilization in a large room was made possible by examining the urine of a nurse who had been giving inunctions to patients over several weeks. These inunctions had been given in large, well ventilated rooms with the gloved hand. We were able in this case to detect mercury in the urine; even though no inunctions had been given by the nurse for nine days previous to the test. Successful experiments of this nature are also reported by Welander.

From the last experiments it may justly be concluded that in the case of both calomel and mercurial ointment, mercury is volatilized at body heat to such a degree that an appreciable absorption and elimination takes place in the urine. As a corollary to this it may further be concluded that the absorption of mercurial ointment and calomel following inunction is necessarily greater than can occur with the less volatile salts. The therapeutic effect of these two may thus be regarded as greater in view of the greater degree of absorption. In this connection we should like to state that it was Dr. Schamberg who more than a year ago, in conversation, suggested the obvious advantage of calomel over the more offensive mercurial ointment as a possible substitute for it.

In connection with that portion of the mercury which is volatilized, the question now arises as to just how this is absorbed. Two possibilities must be considered. In the first place, a certain amount, at least, must be inhaled through the lungs and absorbed in this way. Regarding the skin surface as an animal membrane, it seems not unlikely that a certain portion, at least, however small, may combine with the surface moisture of the skin to form a chlorid and be absorbed through the skin in this way. Unfortunately there are as yet no experiments which bear immediately on this question as regards mercury itself, although the diffusion of heavy metals through animal membrane is the subject of well known experiments.

CONCLUSIONS

1. The mode of absorption of mercury in the inunction cure is both by volatilization and by direct absorption through the skin.

2. Nonvolatile salts of mercury are absorbed through the skin, but their elimination and their absorption are far slower than is the absorption of those salts having a high vapor pressure.

3. The more rapid appearance of mercury in the urine in the case of the volatile salts is probably due to the combined action of volatilization and inhalation through the lungs and absorption through the skin.

4. In the order of rapidity of absorption, mercurial ointment ranks over calomel, although the latter is appreciably absorbed through volatilization.

5. As the therapeutic effect of mercury is probably in proportion to the rapidity and degree of absorption,

there can be no question that the volatile salts should not be superseded in the inunction cure by the non-volatile salts, even though the latter have the advantage of cleanliness.

6. As calomel is obviously a cleaner preparation, and further, as it is absorbed both by volatilization and directly through the skin, further study should be undertaken to determine whether its therapeutic effect may not justify its substitution for mercurial ointment.

REMOVAL OF URETERAL CALCULUS BY CYSTOSCOPIC METHOD

WILLIAM S. EHRICH, M.D.
Fellow of the American College of Surgeons
EVANSVILLE, IND.

Miss E. E., aged 22, fairly well nourished, referred to me, Oct. 7, 1916, by Dr. P. C. Rietz of Evansville, Ind., had had colicky pains on the right side for about two years. Roentgenoscopy eighteen months before, while she was under the care of another physician, had revealed a shadow in the ureter about 5 cm. above the bladder. At the time of my examination, the Roentgen ray revealed a shadow in the same position. The urine contained a few pus and blood cells, and oxalate crystals. There was a decided tenderness in the right iliac region, and a dull pain was almost always present. Cystoscopic examination revealed a normal bladder but very small ureter orifices. A No. 5 catheter was with much difficulty introduced into the right ureter about 4 cm., when it encountered an obstruction which could not be passed.

We decided that the stone must be removed, and having recently seen Dr. Bransford Lewis do some of his ureter work, we determined to try this method before resorting to the open operation.

The Lewis operating cystoscope was introduced and the meatus slit for the distance of 0.75 cm. with the scissors. This was followed by the introduction of catheters, increasing in size, until a Garceau catheter seemed to dislodge the stone and was then passed as far up as was desired. The ureter dilator then entered without trouble and the ureter was dilated to the size of the shadow of the stone. This, of course, was done gently and gradually, the ureter being dilated four times at intervals of one week.

About two weeks after the last dilatation the patient had a slight colic, and the stone passed into the bladder. Since that time the patient has been without any symptoms.

The anaesthetic used was morphin, one-fourth grain, with atropin half an hour before cystoscopy and alypin, 4 per cent., injected into both the urethra and the ureter.

I should like to bring out a few points about this method in reply to some objections which have been raised. First, why has not this method, at least in removal of the smaller stones, supplanted the open operation? It was in 1904 that Dr. Lewis first brought the method to the attention of the profession, and I know of no urologist who has attempted to follow it. I will quote from a letter from Dr. Lewis which will be self explanatory: "I have met with a considerable degree of skepticism for various reasons. Some of the profession thought the work was too refined and difficult to prove practicable; others, I believe, have thought that I might have been drawing on my imagination with reference to the satisfactory results attained." In regard to these objections I would say that while there are few of us who may hope to attain the skill with the use of the cystoscope that Lewis has developed, still, my successful performance of the operation is proof that any competent cystoscopist may do the same.

The matter of hemorrhage has been mentioned. In this case there was none; but had there been, a little epinephrin injected into the ureter would probably have controlled it, and if not, the cauterization from the d'Arsonval current would certainly have done so.

It is important always to dislodge the stone and push it back at least 1 or 2 cm. so that the dilator may reach the point of narrowing which first caused the stone to stop in its passage.

Before open operation is resorted to, this method should always be tried in cases in which the stones are within 4 or 5 inches of the bladder, because of its simplicity, because of the comparative lack of danger, and because of saving the patient the unpleasantness of a major operation and a tedious convalescence.

THE CULTIVATION OF A MICROCOCCUS FROM BLOOD IN PRE-ERUPTIVE AND ERUPTIVE STAGES OF MEASLES *

RUTH TUNNICLIFF, M.D.
CHICAGO

In 1905, Hektoen[1] produced measles in two men by injecting blood collected early in the disease from measles patients. Aerobic ascites broth cultures of the injected blood remained sterile. In 1911, Anderson and Goldberger[2] demonstrated that the rhesus monkey is susceptible to inoculation with the blood of measles early in the eruptive stage. Their results pointed to a "period of infectivity of the blood beginning at least before and continuing for about twenty-four hours after the first appearance of the exanthem. At the end of about twenty-four hours from the appearance of the eruption, the infectivity of the blood for the rhesus monkey already appears very greatly reduced and becomes progressively less thereafter." The blood of each patient and of the monkeys showed no growth in aerobic glucose broth cultures. Later experiments indicated that the desquamating epithelium[3] of measles in itself did not carry the virus, and that the nasal and buccal secretions of uncomplicated cases might at times, but not always, be infectious for the monkey. through a Berkefeld filter, (2) resist desiccation for They[4] found that the virus in measles may "(1) pass twenty-five and one-half hours; (3) lose its infectivity after fifteen minutes at 55 C.; (4) resist 'freezing' for twenty-five hours, and (5) possibly retain some infectivity after twenty-four hours at 15 C."

From these experiments it is evident that the virus of measles is present in the blood early in the disease, but apparently cannot be grown in ordinary aerobic cultures. Blood cultures, therefore, have been made during the pre-eruptive and early eruptive stages of the disease by the newer anaerobic cultures as well as aerobic methods.

The blood was drawn with a sterile syringe from the vein at the elbow, after carefully washing with alcohol or tincture of iodin and alcohol. Generally whole

* From the Memorial Institute for Infectious Diseases.

1. Hektoen: Jour. Infect. Dis., 1905, **2**, 238.
2. Anderson, J. F., and Goldberger, Joseph: Pub. Health Rep., 1911, **26**, 847, 887; The Period of the Infectivity of the Blood in Measles, The Journal A. M. A., July 8, 1911, p. 113.
3. Anderson, J. F., and Goldberger, Joseph: The Infectivity of the Secretions and the Desquamating Scales of Measles, The Journal A. M. A., Nov. 11, 1911, p. 1612.
4. Goldberger, Joseph, and Anderson, J. F.: The Nature of the Virus of Measles, The Journal A. M. A., Sept. 16, 1911, p. 971.

blood was added to the medium, but sometimes it was collected in sodium citrate solution. The cultures were incubated at 36 C.

Anaerobic cultures have been made in semicoagulated horse serum; on anaerobic Krumwiede[5] plates as used by Dick and Henry[6] in blood cultures in scarlet fever; in ascites fluid and horse serum alone or with plain and dextrose broth, with and without tissue. Anaerobic cultures have also been made of hemolyzed blood and lately of whole blood in ascites dextrose agar shake cultures as used by Plotz[7] in isolating the typhus bacillus.

The coagulated horse serum was prepared by heating the serum, about 10 c.c. in each tube, at 56 C. for one hour on three successive days, the temperature at last being raised slowly to 70 C. and kept there until the serum became semicoagulated. The tubes were incubated four or five days before being used. About 1 c.c. of blood was added to each tube directly from the syringe and forced toward the bottom of the tube with a sterile pipet. When the cultures were examined, some of the contents from different parts of the tube were removed with a pipet, and smears and subcultures made.

Fig. 1.—Micro-organisms in original semicoagulated horse serum culture; five days' growth; Gram stain; × 1,000. The organism often is much smaller than these in the photomicrograph.

In using the Plotz method only 0.5 c.c. of blood was added to the ascites dextrose agar on account of the difficulty of otherwise seeing the colonies. Large test tubes containing 20 c.c. of dextrose agar were employed so that the contents could be mixed without being poured into another tube. Aerobic cultures were made in the fluid mediums mentioned.

All mediums were always thoroughly tested for sterility. As the experiments have been carried on during a period of four years, a large number of specimens of ascites fluid and horse serum have been used. Subcultures from the various inoculations were made on ascites goat blood agar slants, in semicoagulated horse serum and various fluid mediums. The original cultures and subcultures were made anaerobic by the use of pyrogallic acid and sodium hydroxid, the stoppers being paraffined. Occasionally sterile fluid paraffin was used on fluid cultures.

Successful cultures were not obtained in any of the anaerobic fluid mediums or in the aerobic cultures. The absence of growth in anaerobic fluid cultures may be due to the medium being more aerobic than the solid and semisolid mediums. The largest number of positive cultures were obtained in semicoagulated horse serum and the whole blood ascites dextrose agar shake cultures. The anaerobic plates and the hemolyzed blood ascites dextrose shake cultures were fairly satisfactory, but the chances of contamination are slightly greater than with the other methods.

Blood cultures have been made from fifty patients in the pre-eruptive and eruptive stages and from five when the rash was fading. In every instance it concerned true measles — rubeola. A small micrococcus was observed in the original anaerobic cultures in forty-two of the early cases. The cocci were found in all of the last fifteen cases studied. In the earliest culture, obtained a few hours after the appearance of the Koplik spots and twenty-four hours before the eruption, there were only a few organisms. Cocci were present in large numbers in the cultures of three patients made a few hours before the appearance of the exanthem; two in ascites dextrose shake cultures showed innumerable colonies. Similar shake cultures made in a case when the rash was just appearing showed about one-half as many colonies. The organisms now become less numerous and disappear from the blood as soon as the rash begins to fade.

Twenty-eight of the forty-two positive cultures grew slightly for two or three generations only. One strain remained strictly anaerobic, growing only on blood agar and not in fluid mediums. Thirteen strains became aerobic in the second generation and grew fairly abundantly. The subcultures from the coagulated horse serum may not have been made always at the most favorable time, as it is impossible to see the growth in this medium. In the shake cultures the colonies could generally be seen, so that the tubes could be opened as soon as growth occurred. Sometimes, however, the colonies are so small they can be seen only with difficulty after the tube is broken and the medium sliced with a sterile scalpel. Growth appears in the original tubes in from one to twenty-two days, generally in from five to fifteen days. The cultures in which the organisms were first found in the second and third week may have grown out earlier and not been observed. Subcultures generally grow in twenty-four hours after growth is established. Growth in the strictly anaerobic strain occurs on about the ninth day.

Successful subcultures on plain blood agar plates show small greenish colonies giving a decidedly green color to the medium. The growth on dextrose blood agar is more profuse and more moist. After growing a few days the culture has a burnt appearance. Four of the strains gave larger, moister colonies. These four do not decolorize milk; the others produce acidity and some coagulation. They all grow on plain agar as a colorless growth. In ascites dextrose broth the growth is flocculent, the fluid often remaining clear. They grow a little in plain broth. All ferment dextrose and saccharose and all but one maltose. An occasional strain ferments mannite and lactose. None ferment inulin, salicin and raffinose. None are soluble in bile. None liquefy gelatin.

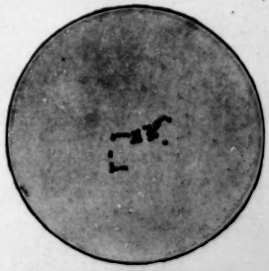

Fig. 2.—Forty-eight-hour growth on ascites goat blood agar of a strain producing small colonies; Gram stain; × 1,000.

In smears from the original culture, the organism appears as a very small, round, sometimes flattened

5. Krumwiede: Jour. Infect. Dis., 1913, **12**, 199.
6. Dick, G. F., and Henry, G. R.: Jour. Infect. Dis., 1914, **15**, 85.
7. Plotz: Jour. Infect. Dis., 1915, **17**, 1; Baehr: ibid., 1917, **20**, 201.

diplococcus or in short chains, sometimes as clumps of cocci of varying sizes. In the coagulated horse serum they are so small and sometimes so few in number that considerable search is necessary to find them. They are perfectly distinct, however, when they are found. In subcultures the organisms appear larger, generally as a diplococcus, sometimes in short chains, but sometimes in long chains or in clumps like staphylococci. The cocci at the ends of chains are occasionally smaller than those in the center. This is especially noticed in the anaerobic strain. Large forms are occasionally seen. The organism is gram-positive and stains with ordinary stains. Carbol-gentian-violet was used in staining the original cultures on account of its penetrating power.

A similar diplococcus was isolated from the throats of all the patients examined on aerobic blood plates, and was the organism most frequently found in anaerobic cultures from the nose and eye. It was isolated in pure culture from discharge from the ear. The organism was not found in similar blood cultures from five measles patients with fading eruptions, five normal persons, two suspected measles cases and three scarlet fever patients. It is not described by Dick and Henry in their exhaustive work on anaerobic blood cultures in scarlet fever.

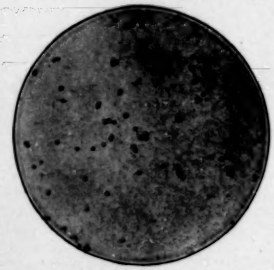

Fig. 3.—A forty-eight-hour growth on ascites goat blood agar of a strain producing larger colonies; Gram stain; × 1,000.

Cultures of the diplococcus pass through Berkefeld filter "N." They resist drying twenty-four hours, none being alive in forty-eight. Swabs were soaked in a horse serum dextrose broth culture, allowed to dry in sterile test tubes at room temperature for varying periods and then cultured. The organism is killed by heating at 57 C. for forty-five minutes. It resists a temperature of —2 C. for at least fourteen days, and 50 per cent. glycerin two months at least.

In scarlet fever, Dick and Henry found that at the height of the attack a variety of bacteria are present in the blood. The same occurs in measles. Before the eruption the diplococci I describe were found alone in the blood and alone also in twenty-one cases soon after the appearance of the exanthem. At the height of the fever, however, various other bacteria were isolated from the blood in twenty cases: Aerobic (ten cases) and anaerobic diphtheroid bacilli (twelve), filamentous organisms (six), gram-negative spirilla (four), a black pigment producing bacillus (one), spore forming large bacilli (four), and staphylococci (three). With the exception of the gram-negative spirilla, similar organisms were also cultivated from the throat, nose or eye. It is possible that some of these growths came from contaminations, but surely not all.

The special points of interest in this work are: the almost constant presence of a diplococcus in the blood of measles patients during the pre-eruptive and eruptive stages; its presence alone and in large numbers before the appearance of the eruption and alone also in a large proportion of cases at the height of the infection, and its presence at the same time in the throat, nose and eyes.

AN ABNORMAL PERITONEAL FOLD OVER THE FIRST PORTION OF THE JEJUNUM

C. A. ROEDER, M.D.
OMAHA

The rarity of this condition makes it interesting from an embryologic and surgical standpoint. The colon in its embryologic course from left to right brings the

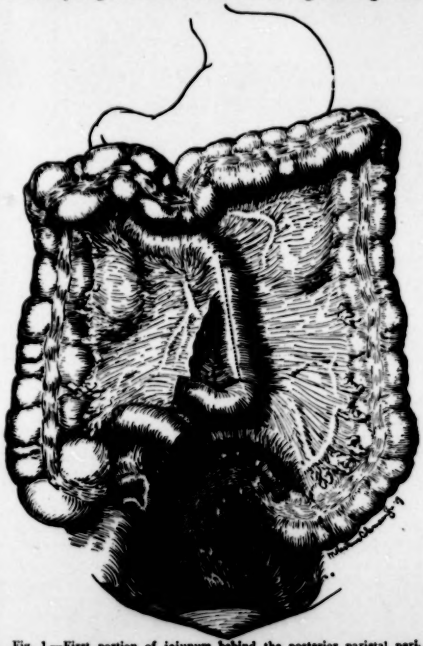

Fig. 1.—First portion of jejunum behind the posterior parietal peritoneum. When the transverse colon was lifted back, this covered portion was not so prominent as in the illustration.

original right leaf of the mesocolon across the duodenojejunal angle, and in so doing leaves this portion as the inferior layer of the transverse mesocolon, covering this area of the small intestine with a crescent shaped part of the original right leaf of the mesocolon, and in turn forming the duodenojejunal fold. In the case to be reported, the inferior layer of the transverse mesocolon covered the first 6 inches of the jejunum, resulting in making the projection of the small intestine into the peritoneal cavity near the pelvic brim instead of at the inferior border of the transverse mesocolon (Fig. 1).

W. J. N., man, aged 45, for six years had had epigastric pain coming three or four hours after meals, relieved by food,

alkalies and later vomiting. Further details and examination elicited a typical duodenal ulcer syndrome. Operation, May 18, 1911, revealed a large duodenal ulcer on the anterior surface, blocking three fourths of the lumen. When the colon was raised in order that the first portion of the jejunum might be located for a Mayo no loop posterior anastomosis, this portion was not to be found. After a few minutes' search, a ridge of peritoneum suggesting the covering of bowel beneath was noticed (Fig. 1), and after I incised it the jejunum was easily liberated to the extent of about 2 inches from its posterior abdominal bed. This ridge, on being traced down, was found to cover the jejunum to the pelvic brim. Owing to the lack of excursion of this part of the jejunum, it was attached to the stomach vertically without clamps, resembling a Moynihan anastomosis (Fig. 2). To date, five and one-half years later, the patient has been perfectly well, relative to his former complaint.

A rather cursory search of the literature has not revealed another similar case. Malcolm[1] reports the nearest example, to my knowledge, with one operative case in his experience, and mentions two postmortem records. These folds or membranes were a great deal more extensive and perhaps of a different origin. Malcolm says:

> The ascending, transverse, and descending colons appeared normal, but when the omentum was turned up there were no small intestines visible anywhere. In their place there was a soft elongated oval mass lying more or less parallel with the long axis of the body. When its lower end which dipped into the pelvis was brought through the incision this mass assumed a rounded shape. It consisted of a thin membrane of peritoneum covering the whole of the small intestines and bulged by them into all parts of the peritoneal sac which they usually occupy. The membrane was attached to the posterior abdominal wall transversely above the sacral promontory, and close to this attachment there was a gap in it (Fig. 3) through which the small bowel passed just before it joined the colon. This opening had a diameter of about an inch and its edge was thickened. The abnormal membrane was incised and afterward cut away and then the small intestines were exposed and appeared to be in all respects normal. The relations of the upper end of the jejunum were those usually found. The membrane which had been incised extended up to the transverse colon, to the back of which it was attached. Above the colon another or the same membrane was continued to the stomach across a space of quite 2 inches. From the stomach a membrane passed to the posterior abdominal wall in the usual position of the lower limiting boundary of the lesser sac of the peritoneum. The abnormal membrane was attached at the sides (Fig. 3) to the posterior wall of the abdomen inside the attachments of the ascending and descending colons, which were rather more loosely fixed than usual. Figures 3 and 4 show the relations of the parts diagrammatically in longitudinal and in cross sections as well as it was possible to define them in the living body.

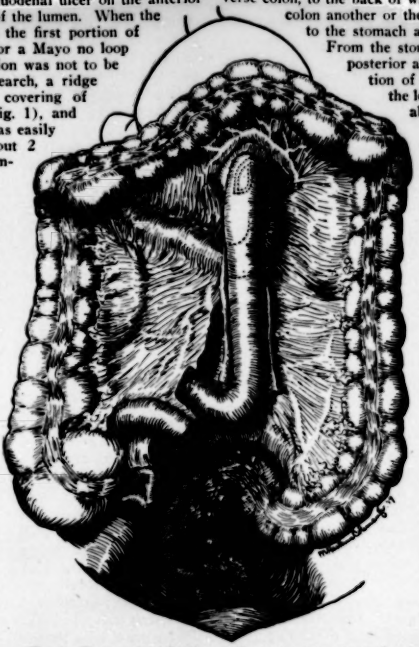

Fig. 2.—First portion of jejunum liberated and anastomosed vertically to the posterior wall of the stomach. The illustration exaggerates upward the excursion of this portion.

Professor Cleland in 1868 described a condition observed postmortem which closely resembled that described above. When the abdomen was opened "the entire mass of the small intestine remained concealed from view, being lodged within a secondary sac bounded by omentum and mesocolon and communicating with the general sac by means of a small aperture at the upper margin of the ileocecal junction only large enough to admit the passage of a finger. . . . On making incisions from this natural inlet to the arch of the colon the normal arrangement of peritoneum may be said to have been produced."

Another example of a somewhat similar abnormality was found in the postmortem rooms of the University of Manchester by Dr. J. D. Hickley and Dr. J. Cameron. In this case the enveloping membrane did not have any opening, and it was quite separate from the colon. It contained in its upper anterior part the lower portion of the duodenum, which lay in front of the superior mesenteric artery.

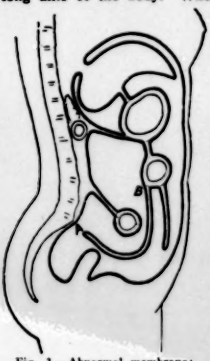

Fig. 3.—Abnormal membrane: *A B*, in longitudinal section; *A* marks the nearly central round opening in the membrane.

Fig. 4.—Abnormal membrane: *C D*, in cross section.

The relations of the abnormal membrane to the colon and the duodenum in this case appear to have been quite different from those which were found in the other two cases.

1. Malcolm, J. D.: Two Rare Abnormalities Observed in the Course of Operations, Lancet, London, 1911, **2**, 1401.

834 Brandeis Theatre Building.

A NEW OPERATION FOR HYPOSPADIAS

ARTHUR DEAN BEVAN, M.D.
CHICAGO

I desire to place on record a new operation for hypospadias for that group of cases in which the abnormal opening is close to the glans, say within an inch. In my surgical work I have tried out a number of operations for hypospadias and found none entirely satisfactory. The nearest approach to a satisfactory operation, I think, for the particular group of cases under discussion is the operation introduced by Beck in which he dissects up the urethra for some distance, bores a hole through the glans, and carries the free urethra up through this opening and stitches it in position. The Beck operation is not satisfactory for several reasons: 1. It shortens very much the undersurface of the organ, putting this under great tension. 2. It produces a lot of scar tissue around the urethra for a considerable distance which also has a tendency to contract. 3. If the operation does not succeed, it does a good deal of damage.

Fig. 1.—Dissection of an oblong flap of skin from around the abnormal opening, the lower part of the flap being longer than the upper.

some time been advising these patients, especially those with an opening close to the glans, to have nothing done in an operative way. Lately, however, in studying over one of these cases I devised a plan which seems to meet the indications admirably and carry with it no disadvantages, and in the one case in which it has been employed the result was perfect in the sense that the urethra was restored from the abnormal opening to the center of the glans with no tendency to contract and with excellent function. The operation can be best understood by reference to the illustrations.

I have likened this skin plastic to an umbrella which has been blown inside out by the wind. The parallel would be closer if we imagined that the handle of the umbrella was a tube like the urethra and that our skin flap when drawn up through the glans is like the umbrella turned inside out.

Fig. 2.—Hole bored through the glans with a trocar. This is enlarged by a closed pair of artery forceps passed up through it, and quite a free opening is made through the center of the glans—so free that there will be no tendency to constrict the flap, which is later introduced into this opening, and cut off its circulation.

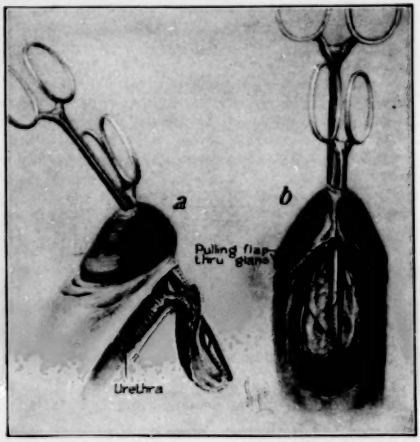

Fig. 3.—Oblong skin flap drawn up through the opening bored in the glans with two very small pairs of artery forceps.

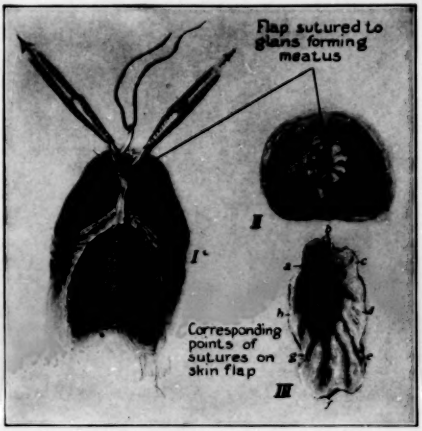

Fig. 4.—Stitching the circumference of the skin flap to the opening in the glans.

The amount of improvement obtained from operation in a number of these cases was so small that I have for

This introduces a new principle in operating for hypospadias in that it makes the new part of the ure-

thra entirely out of the skin flap without buried sutures of any kind, the skin flap being so formed as to make a tube of large caliber which is very elastic and which in time contracts down to a tube of moderate and appropriate size. There is no necessity of using a catheter or of draining the bladder through a stab wound in the perineum. There is no possible damage done to the existing part of the urethra, as this is interfered with in no way.

Fig. 5.—Closure by interrupted sutures of the skin defect left by dissecting up the skin flap.

How wide an application this new operation may be given remains to be proved by actual use in clinical cases. I am inclined to believe, however, that it can be employed in openings 1½ or 2 inches from the normal meatus by modifying slightly the technic. The fact remains that in the single case in which it has been employed it produced the most perfect restoration and the most satisfactory result that I have seen in any hypospadias operation. I present this as a new operation involving a new but very simple principle which I believe should be extended and tried out in a considerable group of cases.

122 South Michigan Avenue.

PECULIAR POISONING IN A CONSTRUCTION CAMP

REPORT OF DEATHS AND PROSTRATIONS

R. P. ALBAUGH, M.D.
Director, Division of Industrial Hygiene, Ohio State Department of Health
COLUMBUS, OHIO

The physician is almost constantly confronted with perplexing problems, prominent among which are the sudden deaths and prostrations which occur from obscure causes. In view of this fact it seems proper to call attention to three deaths and a number of prostrations and illnesses which occurred under unusual circumstances in a construction camp, and which I had occasion to investigate. As the investigation was made almost eight days after the first death occurred, the account is to a large extent dependent on hearsay.

At about 8: 30 p. m., Monday, Dec. 18, 1916, a member of the construction gang, consisting of about thirty white and thirty colored men, discovered one of the colored waiters lying in an unconscious condition on the floor in the bunk house, where he had apparently fallen from the second-tier bunk which he had occupied. The superintendent was notified, and with several others attempted to revive the unconscious man. His respirations were rapid and shallow and his pulse weak and rapid. A physician was called, and by the time he arrived another colored waiter had fallen unconscious and the superintendent and several others were suffering from throbbing temporal headache, dizziness, palpitation, epigastric pain, and weakness, especially of the lower extremities, to such a degree that they were forced to seek their beds. When the physician arrived he concluded that all had eaten poisoned food, and administered apomorphin and other emetics and also cathartics. The physician stayed at the camp for an hour or two and left, thinking that everything possible had been done. The two unconscious men had not regained consciousness, however, but the other afflicted men had fallen asleep and were apparently in good condition.

About 1 a. m. it was noticed that both unconscious men were vomiting and that the one was apparently near death. The physician was again called but was unable to come at that time and sent another physician instead. When he arrived, the waiter was dead, five other men were unconscious, and five more were suffering from dizziness, headache, palpitation, nausea and general weakness to such an extent that they were forced either to sit or to lie down. The physician, also assuming that they had eaten poisoned food, and knowing that the other physician had administered emetics, thought it best to get them to a hospital, and accordingly called ambulances and taxicabs and sent ten of them (six white and four colored) to a hospital, a distance of about 12 miles. Two of the unconscious men regained consciousness during the journey, and several others who had suffered from headache, dizziness, weakness, etc., felt much better by the time the hospital was reached. Physicians at the hospital were agreed that the men were poisoned, probably by contaminated food, and accordingly thoroughly lavaged the stomachs of the afflicted men, and by means of the stomach tube administered a large dose of castor oil to each man. One of the unconscious men died later (December 22)

Fig. 1.—Construction camp in which the men were poisoned.

without regaining consciousness (second death). The others gradually recovered, and in three or four days were apparently none the worse for their experience. The physician who was responsible for sending these men to the hospital informed the investigator that, after returning to his home from the camp, he himself suffered from a severe headache and drowsiness, the headache persisting for the greater part of the day.

At 2 a. m., Friday, December 22, the superintendent and three other men returned to the camp, which had been deserted since the night of the experience recorded above. The superintendent and the cook occupied one room while the other two men occupied a room separated from their room by the "white" dining room and the kitchen. All retired feeling well, but at 4 a. m., when the cook rose to prepare breakfast, he had a violent headache, and was so "weak in the knees" and dizzy that he was forced to go back to bed. He so informed the superintendent, who thought it best to call a physician, but he fell to the floor unconscious before he reached the telephone. One of the men in the other room also became unconscious about this time, and when a physician reached the camp, three were unconscious, and the other was suffering from headache, dizziness and general weakness. All were sent to the hospital and all recovered in a short time except one white man, who died Monday evening, December 25, from what was apparently pneumonia (third death).

To determine the poison responsible for these deaths and prostrations, the stomach and its contents were removed from the body of the man who died first and sent to a physician in a neighboring city for analysis. Feeling certain that such an analysis would reveal the cause of death, the two physicians who removed the stomach did not complete the necropsy, although the heart was opened and found filled with very red liquid blood. The necropsy was performed twenty-four hours after death. A careful analysis of the stomach contents did not reveal the presence of any poison, and it was concluded that ptomains were responsible.

Necropsies on the bodies of the other two men who died revealed, in one, the right lung in a state of general red hepatization and some small petechial patches in the stomach, and in the other the right lung bound down with adhesions laterally and both lungs congested posteriorly and moist on section.

The camp buildings were located approximately 150 yards from the nearest building (the shear room) used by a rolling mill company. The men were housed in three buildings (Fig. 1), the largest of which contained a "colored" bunk room, "colored" dining room, store room, kitchen, "white" dining room, office and two other small bunk rooms used by overseers and kitchen help. The other two buildings were the "white" and "colored" bunk houses (Fig. 2). Each room was equipped with a coal stove except the store room, and all stoves were new and in good condition, and equipped with pipes, without dampers, extending through the roof. No attempt was made to keep fires all night in the bunk rooms, and it was stated that windows were invariably opened at night. The buildings were clean and well kept, and the food in the store room was of good quality and in good condition. The kitchen was equipped with a sink from which a waste pipe led through the floor, and all wastes were allowed to accumulate under the floor to be absorbed by the earth. Several of the men stated that they had noticed some odor as a result of this arrangement, and were inclined to think that they might have suffered from poisoning by "sewer gas."

No gas was used in the building, and it was stated that no gas mains or pipes were situated near the camp. The buildings were located on an old fill or dump, where dirt, slag, scrap, mill wastes, ashes and cinders had been deposited for a period of about five years, but where none had been deposited for the last six months. This fill covered an area of about 1½ or 2 acres, and was from 10 to 15 feet deep.

About ten days previous to the time of the occurrence related above, an employee of the mill noticed what seemed to be a little steam arising from the edge of the fill about 50 feet from the camp building. It was thought that the dump might be on fire, and by means of teams and scoops a trench was dug around the part thought to be on fire in an effort to isolate it. The dump was found to be frozen to a depth of about 2 feet, but at a depth of 5 feet red hot cinders were encountered, and a second trench was started 10 feet back of the other trench. Hot cinders were found in this one, and when the investigator left, the fourth trench was being dug, which extended under the camp building, and in which hot cinders were found at a depth of about 5 feet (Fig. 3). While working in one of these trenches, six men suffered from headache, dizziness, and "weakness in the knees" to such an extent that it was necessary to help them from the trench, and two were taken to the plant hospital of the rolling mill company. On entering one of these trenches the investigator noticed within a few minutes a sense of pressure in the temples, general weakness, especially of the lower extremities, and blurring of the vision.

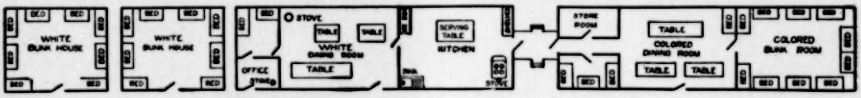

Fig. 2.—Plan of camp.

The deaths, prostrations and toxemias undoubtedly occurred as the result of the inhalation of carbon monoxid. This gas was formed as a result of the smoldering, incomplete combustion of cinders and other material in the dump, and owing to the frozen surface, found its only outlet beneath the camp buildings where the surface was not frozen, having been protected by the building, which was equipped with stoves. The hot water which came through the kitchen sink was probably also a factor in keeping the cinders soft and porous, allowing for free outlet of these gases, acting as a sort of flue for the smoldering fire beneath. Gases passing through earth lose their impurities and odors as they pass onward.[1]

The symptoms and complaints of the men affected were typical of carbon monoxid poisoning, with practically no symptoms pointing toward poisoning by contaminated food or ptomains. It must be remembered, however, that this camp had been occupied for a period of about three months with no trouble, and this can be explained only by the fact that the dump might have been on fire only for a short length of time, or that the gas had never found its way to the surface in

1. Oliver, Thomas: Diseases of Occupation, London, Methuen & Co., 1908.

quantities sufficient to produce poisoning. The latter explanation is probably correct, as the extent of the fire and the fact that nothing had been added to the dump for a period of more than six months would indicate that the burning process had been going on for some time. It is unfortunate that more complete necropsies and chemical tests were not performed, as the presence of carbon monoxid could undoubtedly have been shown by the spectroscope or various chemical tests. Unfamiliarity with carbon monoxid poisoning clinically and the prejudicing theory of food or ptomain poisoning were mainly responsible for the failure of accurate diagnosis.

The company made preparations immediately to move the buildings to a point at which there would be practically no danger. Canaries were placed in the various apartments in order that traces of poisonous gases might be detected early. This was done because of the fact that, with the wind in the right direction, and under certain other atmospheric conditions, harmful amounts of the gas might prevail when the dump was torn up in an attempt to extinguish the fire.

Carbon monoxid causes more cases of industrial illness and death than any other gas, and is a constant danger in thirty or more industries.[2] The gas is colorless, odorless and tasteless, and is found as a by-product wherever combustion of carbon-containing material occurs. It has been said that a volume of air containing 0.01 per cent. may cause headache, dizziness, weakness and other phenomena, while two to three parts per thousand of air are dangerous to life. The gas is toxic by virtue of its power to unite itself with the hemoglobin, replacing the oxygen and forming a stable compound known as carboxyhemoglobin. The affinity of hemoglobin for carbon monoxid is 300 times greater than the affinity for oxygen (Haldane). It probably also has a distinct toxic action on tissues.

Fig. 3.—Camp after dump was torn up. The photograph was taken after it had rained, and clouds of steam are seen rising from the hot cinders.

Bronchopneumonia is found to have been a frequent complication in those who died several days after being poisoned by the gas. It will be remembered that the last two deaths recorded above were probably directly due to a pneumonic condition of the lungs. Postmortem, the blood usually flows freely, is a bright, cherry-red, and has a characteristic appearance as seen by the spectroscope.

In some cases of carbon monoxid poisoning the victim may succumb instantly, while in others there are often prodromal symptoms, as throbbing or feeling of pressure in the temples; epigastric distress, nausea, vomiting; weakness in the legs, often described as "caving in"; severe, bursting headache, or coma.

Carbon monoxid poisoning may become chronic, under which condition the patients will become anemic, irritable and neurasthenic, and complain of headache, anorexia, loss of weight, backache, vertigo, and gastrointestinal disorders. There will also exist a polycythemia and a leukocytosis of the eosinophil forms.

Carbon monoxid (CO) poisoning should not be confused with carbon dioxid (CO_2) poisoning, symptoms of which begin with pressure in the head, vertigo, ringing in the ears, sparks before the eyes, disturbances of respiration, such as air hunger and pain in the chest, and sometimes convulsions. Chronic carbon dioxid poisoning probably does not exist. This gas must be in much greater concentration to be poisonous, about 4 per cent. causing distress symptoms and approximately 10 per cent. causing death.[3] Carbon monoxid is a dangerous poison because of its odorless, colorless and tasteless properties, and its presence should alway be suspected in such cases of sudden prostration and death as here related.

2. Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916.

3. Rambousek, J.: Industrial Poisoning, London, Edward Arnold, 1913.

A COMPARISON OF TRICRESOL AND CHLOROFORM AS A PRESERVATIVE IN ANTIMENINGITIS SERUM *

JOSEPHINE B. NEAL, M.D.
AND
HARRY L. ABRAMSON, M.D.
NEW YORK

Until the fall of 1914, the Research Laboratory continued to use tricresol as the preservative in the antimeningitis serum, as had previously been done at Rockefeller Institute. Late in 1914, the tricresol was replaced by chloroform on account of the discussion in regard to the toxic effects of tricresol, started mainly by reports of Kramer[1] of Cincinnati.

While the discussion on this subject is familiar to many, it may be summarized briefly: Kramer reported, in 1913, a series of cases in which death followed the administration of tricresol serum, and he attributed these deaths to the tricresol, which he held depressed the medullary center, reaching it especially in young children through the central canal of the cord. Kramer also reported the results of experiments on dogs, which were not convincing. Flexner[2] next published an article in which he enumerated the various possibilities of danger in the use of the serum, anaphylaxis, liberation of toxin through the destruction of the meningococcus, and especially increased pressure. He pointed out that, since in the cases reported by Kramer the doses were large and were administered by a syr-

* From the Meningitis Division, Bureau of Laboratories, New York City.

1. Kramer, S. P.: A Possible Source of Danger in the Use of Antimeningitis Serum, THE JOURNAL A. M. A., May 3, 1913, p. 1348.

2. Flexner, Simon: Accidents Following the Subdural Injection of the Antimeningitis Serum, THE JOURNAL A. M. A., June 21, 1913, p. 1937.

inge, it was highly probable that increased pressure was the cause of death, and, furthermore, that accidents have occurred after the administration of serum containing no preservative. Hale[3] showed that the intraspinal injection of tricresol in dogs produced considerable respiratory difficulty which he interpreted as paralysis of the respiratory center. Fitzpatrick, Atkinson and Zingher[4] in our laboratory showed that in dogs the pressure seemed to be the important factor, and that the gradual administration of serum with 0.3 per cent. tricresol did no harm. Auer[5] showed that this respiratory difficulty was much less marked in monkeys, and that it was not due to paralysis of the respiratory center, but to a stimulation of the inhibitory function.

One seems justified in concluding from his experiments that while tricresol affects the medullary center of monkeys somewhat more than ether or chloroform, monkeys tolerate repeated large doses of serum containing tricresol, and that dangerous changes in respiration and blood pressure are due to increased intraspinal pressure. Auer's article contains a very comprehensive study of the subject from the experimental standpoint.

As stated above, serum containing tricresol, at first 0.3 per cent. and later 0.2 per cent., was used by the Meningitis Division of the Bureau of Laboratories from August, 1910, until December, 1914. During this time, the serum was administered about 600 times and to children of all ages, fourteen of the patients being less than 1 year old. As there had never been a fatality immediately following the injection, it seemed improbable to us that the tricresol could be a very dangerous factor even to young children, as Kramer had declared. In a few instances collapse had followed the administration of serum when large doses were used. Later, with smaller doses, these occurrences ceased.

In December, 1914, the use of the chloroform serum was begun. The feeling developed, in time, among those of the division who had used both serums, that the chloroform was more irritating. This conclusion was not reached at once. There is, of course, a great difference in individuals in their reaction to pain. Moreover, the registration of pain in many of our patients is unreliable if they are delirious, stuporous or too young. In time, however, it was noted, in the case of a number of rational and intelligent patients who had behaved well during the puncture and withdrawal of fluid, that the injection of the serum was accompanied by excruciating pain, so that they were unable to keep from crying out and struggling. This added greatly to their dread of the treatment, and to the objection of the family to the continuation, and interfered with the proper regulation of dosage, as the crying out and struggling increased the intraspinal pressure and prevented the easy introduction of the serum. Finally, a lot of serum containing tricresol was prepared so that comparative studies might be carried out in the same individual.

Case 1.—A girl of 16 had received four injections of chloroform serum, suffering extremely each time, so much so that each injection had to be stopped before 20 c.c. were given. She then received six injections of tricresol serum. These were accompanied by practically no discomfort. At the second injection she fell asleep before it was finished. It was also possible to increase this dose to 25-28 c.c., which seemed desirable in this case as the infection was very resistant.

Case 2.—A man, aged 19, had received several doses of chloroform serum accompanied by great pain each time. The tricresol serum caused practically no pain.

Case 3.—A child of 4 years, who had received three doses of tricresol serum without struggling, struggled and cried during the administration of one dose of chloroform serum.

Case 4.—An Italian boy of 5½ years complained of severe pain with the chloroform but not with the tricresol.

Case 5.—A baby was given one dose of tricresol without any marked reaction. When given a second dose of chloroform serum, the baby struggled violently.

Case 6.—A boy of 12 years struggled furiously, three men being needed to restrain him, during two injections of chloroform serum. He was quiet during the administration of tricresol serum.

These six cases in which both tricresol and chloroform serum were used, in addition to our observations in cases in which either the chloroform or the tricresol serum alone was received, show very conclusively that chloroform serum is far more painful than tricresol serum. It may be stated that the injection of serum is practically always *followed* by pain in the legs and general discomfort. It is the sensation *during* injection to which we refer.

TABLE 1.—BACTERICIDAL ACTION OF CHLOROFORM IN 0.2 PER CENT. DILUTION

Organisms and Controls	Exposure Time				
	½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	24 Hrs.
B. coli	++++	++++	++++	++++	++++
Staphylococcus	++++	++++	—	++++	++++
Streptococcus	++++	++++	++++	++++	++++
Meningococcus	++++	++++	++++	++++	++++
Serum control	—	—	—	—	.....
Bacterial suspension control	+	+	+	+	.....
Saline solution control	—	—	—	—	.....

The observations in the cases reported above were made by several physicians as well as by members of the meningitis division.

It is possible, since it belongs to the phenol group, that tricresol, like phenol (carbolic acid), may exert a local anesthetic action. Indeed, it would seem that it must be so, as chloroform is added to practically all the serum when it is first withdrawn; consequently the tricresol serum contains tricresol in addition to the chloroform.

Whether or not because of the difference in the preservative of the serum, it may be stated that the mortality of the cases treated by the meningitis division from Dec. 1, 1913, to Dec. 1, 1914, when all serum contained tricresol in addition to the chloroform, was 30 per cent., while for the following year, when chloroform was present, it was 38 per cent.

Tricresol has a marked bactericidal action, in vitro, on the meningococcus, and also exerts within forty-eight hours some bactericidal effect on organisms that might accidentally contaminate the serum. Chloroform possesses much less bactericidal action and would, therefore, seem to be of limited value as a preservative.

These points are illustrated in the experiments:

Experiment 1.—*Bactericidal Action of Chloroform in 0.2 per Cent. Dilution.*—Before the experiment was begun, normal horse serum was freshly drawn and cultured on glucose

3. Hale, Worth: The Cause of Death from Subdural Injections of Serum, Bull. 91, Hyg. Lab., U. S. P. H. S., December, 1913.

4. Fitzpatrick, C. B.; Atkinson, J. P. and Zingher, Abraham: The Comparative Importance of Pressure and of Toxicity of Trikresol in Subdural Injections of Sera, Collected Studies from the Bureau of Laboratories, City of New York, 1914-1915, p. 37.

5. Auer, John: The Effect of Intraspinal Injections of Serums with and without Preservatives, The Journal A. M. A., June 6, 1914, p. 1799.

ascitic agar for twenty-four hours. Direct dilution of the chloroform in 50 per cent. normal serum was made to secure a better solubility of the chloroform.

The organisms used, after a growth of each organism had been obtained on glucose ascitic agar for twenty-four hours, were: the colon bacillus, the staphylococcus, the streptococcus and the meningococcus (second generation). Three c.c. of sterile saline solution were used in washing off the growths of every organism excepting the streptococcus, for which 2 c.c. of saline solution were used in order to obtain a greater number of bacteria. This constituted the bacterial suspension for the experiment.

After both the bacterial suspension and the chloroform dilutions had been thoroughly shaken, equal quantities of the material were mixed and shaken up for a few minutes, 0.5 c.c. of each being used.

The bacteria were exposed to the action of the disinfectant for periods of time of half an hour, one hour, two hours, four hours and twenty-four hours. At the expiration of the half hour, or first exposure, the mixture was planted on slants of glucose ascitic agar, and two loopfuls of this used for all the subsequent exposures.

At the end of the four-hour period all the slants were placed in the incubator at 37.5 C.

Controls were also made of the serum dilutions, bacterial suspensions and the saline solution used throughout the experiment.

EXPERIMENT 2.—*Bactericidal Action of Tricresol in 0.1, 0.2 and 0.3 per Cent. Dilutions.*—In this experiment, the procedure was the same as that for Experiment 1. The disinfectant dilutions were made up directly in normal serum, a 100 serum being used. A strain of meningococcus of the second generation was used (Table 2).

TABLE 2.—BACTERICIDAL ACTION OF TRICRESOL IN 0.1, 0.2 AND 0.3 PER CENT. DILUTION ON THE MENINGOCOCCUS, 100 PER CENT. SERUM

Dilution, Per Cent.	Exposure Time				
	½ Hour	1 Hour	2 Hours	4 Hours	24 Hours
0.1	++++	++++	+++	++++	—
0.2	++++	++	—	—	—
0.3	—	—	—	—	—

TABLE 3.—BACTERICIDAL ACTION OF TRICRESOL IN 0.1, 0.2 AND 0.3 PER CENT. DILUTION, 50 PER CENT. SERUM

Organisms and Controls	Exposure Time					
	½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	24 Hrs.	48 Hrs.
B. coli						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++++
0.2 per cent. dilution	++++	++++	++++	++++	+++	+++
0.3 per cent. dilution	.....	.....	.....	.....	—	—
Staphylococcus						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++++
0.2 per cent. dilution	++++	++++	++++	++++	++++	++++
0.3 per cent. dilution	++++	++++	++++	++++	++++	++++
Streptococcus						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++
0.2 per cent. dilution	++++	++++	++++	++++	+++	+
0.3 per cent. dilution	++++	++++	++++	++++	—	—
Bacterial suspension control	+	.....	.....	.....	+	+
Serum control	—	.....	.....	.....	—	—
Saline solution control	—	.....	.....	.....	—	—

CONCLUSIONS

1. The bactericidal action of tricresol on possible contaminating bacteria is much superior to that of chloroform.

2. The marked bactericidal action of the tricresol on the meningococcus in vitro may be of advantage in vivo.

3. When tricresol is not used, the pain of injecting the serum is so great as to constitute a serious drawback in the treatment of meningitis, not only on account of the resulting objection on the part of the patient and the family, but also on account of the difficulty of regulating the dosage when the patient is struggling.

SUGGESTED FORMULAS FOR PARAFFIN FILMS*

TORALD SOLLMANN, M.D.
CLEVELAND

The popular propaganda for "Ambrine" has brought the subject of paraffin-film treatment of burns into prominence. The results are said to be better than are obtained by other methods of treatment; however, neither "Ambrine" nor any other preparation could accomplish "miracles." The principle of the method is supposed to be mainly if not solely mechanical; the film of paraffin being impervious, forms a protection to the exposed tissues. On the other hand, it can readily be removed when desired. Perhaps the paraffin also forms a sort of scaffolding for the feeble granulations.

The method at least deserves scientific investigation. Such investigation, however, is hampered by the optimism which has developed in the minds of even medical men, regarding the efficacy of this treatment, resulting from the sensational accounts of the use of the secret French preparation, "Ambrine," in the present war. Another serious obstacle is the secrecy of the preparation so exploited, since it complicates any attempt at improvement. If the principle of paraffin films is a useful one, it is open to question that "Ambrine" is the *ne plus ultra* of these films. It is one of the disadvantages of the secrecy that we do not know what attempts have been made to secure the best possible preparation; and in the absence of this knowledge, it is reasonable to suppose that the preparation is capable of modifications which might be improvements. Perhaps extensive investigations have already been made in this direction; but of this we know nothing. If they have been made, we do not know whether or not all the possible lines of modification were taken into account.

The subject was brought to my attention by Dr. George W. Crile, and after weighing the foregoing considerations, it has seemed to me worth while to devise a series of paraffin combinations, so that the advantages of the various types of films could be tried out fairly. Since I started on this investigation, two American preparations have been placed on the market. Both have followed the French example of keeping the composition secret, and both therefore are open to the foregoing objections. This secrecy makes a systematic comparison of the different films difficult. However, I have compared the physical properties of these commercial preparations with the formulas which I have given herein. Since experimentation with preparations of unknown composition cannot add much of permanent value to our knowledge, and is apt to be largely wasted, it seems worth while to publish the formulas and properties of our preparations without awaiting their clinical trial. Indeed, the very object of this publication is that they may receive such clinical trial.

In planning the formulas for these waxes, I intentionally avoided a slavish imitation of the pretended composition of the proprietary preparations. On the contrary, I have aimed to make the formulas simple, each containing at most two constituents; to make the manipulations so simple that the preparations

* From the Pharmacological Laboratory, Western Reserve University, School of Medicine.
* Investigation supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

could be made independently, and if possible extemporaneously, by any pharmacist, and would thus be accessible to any surgeon who cared to try them; to vary these formulas so as to produce preparations with properties which differ considerably, and to devise simple methods for comparing the relevant physical properties. I have intentionally refrained from adding any deodorant, antiseptic, coloring matter, etc. I believe that the first step should be to determine the suitability of these films from a purely mechanical standpoint. After the suitable type or types have been selected, it will be an easy matter to modify them by such additions.

The significant properties of the films appear to concern in the first place the melting point. This should be not much lower than 48 C., and not much higher than 53 C. Within this range, I incline to believe that the melting point is practically immaterial.

The hardness of the wax may be important. The harder the wax, the more firm is the support which it affords; but on the other hand, the softer films are probably more "soothing." It is quite possible that different cases may demand different types of films in this respect.

A further important property is the strength of the film (fragility). It involves at least two factors: (1) ductility, the coherence of the film against pulling and kneading—a property which reflects the resistance of a film against stretching; and (2) pliability, the resistance to fracture on bending.

The first of these (the resistance to pull) can be determined only roughly by comparative methods; there is no convenient quantitative measure of this, although one could perhaps be devised. The resistance to breaking can be determined quantitatively in relation to the temperature: the more fragile films will break on bending at a relatively high temperature, while the more plastic films can be bent at relatively low temperatures.[1]

General Methods of Preparation.—The mixtures were prepared simply by melting the ingredients in a water bath, after which the mixture was heated to 145 C. for sterilization.

Melting Point Determination.—This was attempted by the U. S. P. method, which consists in drawing the melted wax into a capillary tube; cooling for a certain period; attaching the tube to a thermometer; immersing in a water bath, and heating slowly until the melted wax begins to rise in the capillary tube.

The last clause of this method was not found very satisfactory with the more viscid fats: the slow heating gave a variable melting point usually several degrees higher than that obtained by immersing the capillary directly into the bath, which had previously been heated to the required temperature. The explanation probably lies in the viscidity of the oil when the column in the capillary tube is heated throughout, as it must be when the heat is raised gradually. Evidently the lowest melting point must be the correct one, so that our modification appears fully justified.

Determination of Hardness.—This was determined at 22 C. by trying the cakes of the preparations on each other, seeing which would indent the other. Since absolute accuracy was not necessary, the preparations were made into a limited number of groups, designated by Roman numerals according to their hardness.

Formation of Membranes.—It was aimed to produce films under conditions which would approach physically those of clinical use. For this purpose, the preparations were melted on a water bath. A sheet of plate glass was meanwhile warmed to from 38 to 40 C. by immersion in a water bath kept at this temperature. When the paraffin was melted, the plate was taken from the bath and the melted wax poured on the moist plate glass and spread with a hot spatula. The plate with the film was then immediately immersed in the 38 to 40 C. water, kept there for a few minutes, and then lifted off with a spatula. This detachment of the film furnishes a preliminary idea of its general properties.

Further experience indicates that the method of preparing these films does not affect materially their significant behavior to temperature limits. Any method that yields fairly thin films may therefore be employed. At present, I make the films by pouring a teaspoonful of the melted wax on the surface of water at about 40 C.

Determination of Strength of Film.—The films were placed in a bath at 38 C. and then gently manipulated by kneading and pulling, noting their coherence, thinness of membranes that could be formed from them; the ease with which they are torn on pulling, etc.

Determination of Breaking Temperature.—The films were immersed in a bath of a given temperature for a few minutes and then bent on themselves. At the lower temperatures, this causes the film to break sharply at the crease. At the higher temperatures, the films can be doubled without breaking.

The temperature at which breaking just occurs varies for each wax, and appears to be an objective and very useful index of its fragility. Since great accuracy was not necessary, the temperatures were determined only approximately, and at intervals of 5 degrees. In the table, the lower temperature is that at which the film breaks; the upper temperature that at which it can be bent without breaking.

Determination of Ductility Temperature.—The films are placed in warm water and pulled. The water is gradually cooled, noting the temperature when the film breaks with a straight fracture, without stretching.

The lower the temperature at which the film begins to break on bending or pulling, the greater is its pliability or ductility.

The individual preparations and their properties are shown sufficiently in the accompanying table. It is probable that clinical trials will introduce new factors so that the usefulness of the various preparations cannot be judged altogether from the physical results given in this paper.

(The cost of these preparations is low; paraffin, the principal ingredient, is at present about 15 cents per pound.)

For purposes of simplification the different preparations can be arranged into a number of groups. The most distinctive feature is the hardness, ranging from the stiff beeswax to the gelatinous petrolatum. It is this property, more than any other, which determines the mechanical usefulness of the individual preparations for special purposes. Aside from this, it is desirable that the preparation should have a low melting point, and that it should remain pliable at a relatively low temperature.

With these points in mind, the following grouping appears most promising; it is arranged in descending

1. Further experience indicates that ductility may be expressed quantitatively by the temperature at which a thin film breaks sharply when pulled in a straight line.

order of hardness, giving the number of the formulas under each class, in the order of preferance:

Class I: Paraffin, Formulas 17, 18 and 16.

Class II: Paraffin-wax mixtures, Formulas 11, 12, 10, 19, 15 and 6.

Class III: Paraffin-Asphaltum mixtures, Formulas 25 to 27.

Class IV: Paraffin-oil mixtures, Formulas 13, 23, 24, 8, 14, 9 and 4.

Class V: Paraffin-petrolatum mixtures, Formulas 5, 1, 2 and 3.

PREPARATIONS AND THEIR PROPERTIES

Formula No.	Composition			Melting Point (C.)	Degree* of Hardness at 22 C.	Fragility Temp. (Break on Bending) (C.)	A. Formation of Membrane B. Strength of Film at 38 C.; (Break on Kneading and Pulling)
0 =	"Ambrine"			51	III	18-24	A. Coherent; detaches easily; fairly soft B. Very good resistance and pulls very thin; still ductile at 33°.
00 =	Petrolatum (yellow)			50.5	0	.....	
000 =	Paraffin (stock)			53	...	.....	
1 =	Paraffin	000	100	52	II	30-35	A. Greasy, crumbly and weak, but detaches easily and sufficiently intact B. Poor resistance, though better than 2
	Petrolatum	00	20				
2 =	Paraffin	000	100	49.5	I	35-35	A. Weak, greasy, noncoherent; difficult to detach; unworkable B. Very weak; crumbles
	Petrolatum		100				
3 =	Paraffin	000	100				A. Ointment consistency at 43 C.; too soft to use
	Petrolatum	00	300				
4 =	Paraffin‡		110	52.5	II	35-35	A. Detaches well, but soft and crumbly; slightly greasy B. Soft and crumbly
	Venice turpentine		22				
5 =	Paraffin‡		110	52.5	III	35-37	A. Rather weak, although sufficiently coherent to form a film B. Soft and crumbly; very weak
	Petrolatum		11				
6 =	Paraffin‡		110	52	IV	35-35	A. Hard but crumbly; not sufficiently coherent B. Very crumbly (practically like 5)
	Japan wax		22				
7 =	Japan wax			50	IV	37- ?	A. Does not solidify promptly when undercooled; does not detach except by scraping B. Hard, brittle and crumbly; sets very slowly.
8 =	Paraffin‡		110	53	III	35-35	A. About like 11 B. Greasy and quite crumbly; very weak
	Olive oil		11				
9 =	Paraffin‡		110	53.5	IV	30-35	A. Solid, but not very strong, and rather crumbly B. Quite brittle and crumbly; soft
	Castor oil		5				
10 =	Paraffin‡		110	52.7	IV	25-30	A. About like 11 B. Fairly strong; can be pulled very thin; somewhat more brittle than "Ambrine"
	Yellow beeswax		11				
11 =	Paraffin‡		110	53.5	III	25-30	A. Soft, but very coherent, and detaches well; very promising B. Good, about like "Ambrine"
	Spermaceti		11				
12 =	Paraffin‡		110	53.25	IV	25-30	A. About like 11 B. About like "Ambrine"; a little harder and probably a trifle more brittle
	Stearic acid		11				
13 =	Paraffin‡		110	53	III	35-37	A. Soft, but detaches well; very promising B. Soft and breaks
	Cacao butter		11				
14 =	Paraffin‡		110	52	III	35-37	A. Not greasy, but soft and crumbly, and not sufficiently coherent B. Soft and fragile
	Cacao butter		22				
15† =	Paraffin‡		110	53.5	V	30-30	A. Very slightly greasy; detaches and coheres; but not quite as good as 16 B. Like "Ambrine," or stronger
	Resina		11				
16 =	Paraffin‡			52	IV	30-30	A. Detaches beautifully; very promising B. Rather more brittle than "Ambrine," but pulls out well; ductile at 36.5°; not at 33°.
17 =	Paraffin, "embedding," M. P. 48 C.			48	III	25-30	A. Coherent and detaches quite well B. Practically like "Ambrine"
18 =	Paraffin, "embedding," M. P. 52 C.			51.5	IV	24-25	A. Good film, but rather fragile B. About like "Ambrine," a little harder and more fragile and not quite as plastic
19 =	Paraffin‡		110	53.75	IV	25-30	A. Strong and coherent film B. About like "Ambrine;" slightly more brittle.
	Cera flava		22				
20 =	"Mulene"§			52	IV	16-18	A. Coherent, but detaches with difficulty B. About like "Ambrine;" slightly more brittle.
21 =	"Parresine"§			48	II	25-25	A. Soft, but coheres well B. About like "Ambrine," but slightly more fragile.
22 =	Yellow beeswax			(62-65 U.S.P.)	II	? -16	A. Dry, strong and coherent; not easily detached B. Fair resistance
23 =	Paraffin‡		110	49.5	II	33-36	B. Just ductile at 36.5°; not at 33°.
	Liquid Paraffin		5				
24 =	Paraffin‡		110	52	II	33-33	B. Just ductile at 36.5°; not at 33°.
	Liquid Paraffin		5				
	Beeswax		10				
25 =	Paraffin‡		110	48.5	II	25-28	A. Dry, very extensile, coherent, somewhat adhesive. B. Just ductile at 28°.
	Asphalt Varnish		11				
26 =	Paraffin‡		110	50.5-51	IV	27.29.5	A. Very pliable, somewhat adhesive B. Just ductile at 33-36°.
	Asphalt (Trinidad or Bermudez Asphalt Cement, 1 to 3%; or Texas Asphalt, 1%)		1 to 3				
27 =	Paraffin‡		110	51.5	IV	29.5-33	A. Pliable, but too adhesive B. Just ductile at 33-36°.
	Texas Asphalt		5				
28 =	"Soft Paraffin"			50.5	III	26.5-28.5	A. Much more ductile than Formula 16 at body temperature B. Just ductile at 28.5°; not at 26.5°
	Cacao butter			32.8	Not determined personally		
	Stearic acid			56	Not determined personally		
	Spermaceti			(42-50 U. S. P.)	not determined personally		

* V is highest; zero lowest.

† Resin and Venice turpentine do not appear to mix well with paraffin, and must be kept stirred.

‡The brand of paraffin used in these experiments was "Parowax," a trade name applied to paraffin marketed by The Standard Oil Co. of Indiana. It is a rather hard paraffin; softer varieties would be preferable. It should be remembered that the various oil refining companies have individual trade names of their own for their products.

§Preparations Nos. 20 and 21 are proprietary formulas.

Class I.—*Simple Paraffins (17, 18, 16).*—These comprise the commercial paraffins of melting points of from 48 to 53 C. They are quite hard (generally IV of the scale), and break between 25 and 30 C. They would be used when a relatively stiff film is desired, which would separate clean from the wound. Their mechanical properties are quite similar to Ambrine. They are perhaps somewhat more fragile, but the difference does not seem important. They are the simplest and cheapest agents. Presumably any available "paraffin" could be used; but when a choice is possible, samples melting close to 50 C. would be preferred. It should be understood that commercial paraffins are complex mixtures of hydrocarbons and that the various commercial brands may differ in their physical properties, such as melting point, hardness and flexibility. It is doubtful, however, whether these differences are of practical importance in the clinical use.

Class II.—*Paraffin-Wax and Related Mixtures.*—The addition of small amounts of various waxes, etc., modifies the properties of paraffin somewhat; but the modifications are relatively slight, and I doubt whether they have any real importance. I tried mixtures with beeswax, 10 per cent. (Formula 10) and 20 per cent. (Formula 19); and with 10 per cent. of one of the following spermaceti (Formula 11); stearic acid (Formula 12) and resin (Formula 15). Nos. 15 and 19 have rather high melting points. The others stand so close to the simple paraffin that I doubt the advisability of giving them an extended trial. If experimentation should appear desirable, I would advise Formula 11 (the spermaceti mixture); or if this is too expensive, Formula 12 (stearic acid mixture).

The *proprietary mixtures of secret composition* also belong in this general class:

"Ambrine" (Formula 0), as I have said, approaches very closely to the simple paraffins.[2] It is rather more plastic and less brittle; but the difference does not impress one as important.

"Mulene" (Formula 20) also comes very close to the simple paraffins, and to Ambrine. The same remarks apply to both.

"Parresine" (Formula 21) is a rather different article. It is softer and more fragile than "Ambrine"; but on the whole it does not depart seriously from the paraffin type.

Class III.—*Paraffin-Asphaltum Mixtures.*—These are distinctly more pliable and more adhesive than the plain paraffin, and can be made into thinner films. Theoretically, these properties would be advantageous; practically, I doubt whether the advantages are important. The paraffin and asphalt do not form perfect mixtures, and must be kept stirred.

A mixture made with 10 per cent. of "asphalt varnish" possessed the desirable qualities, but since the composition of the asphalt furnished is complex and probably variable, no further experiments were made. Other preparations were made with the semi-solid asphalts, such as Trinidad or Bermudez "asphalt cement," from 1 to 3 per cent.; or Texas asphalt (Formula 26). These are not quite so plastic as the varnish formula, but nevertheless are quite promising. Higher proportions are less desirable, such as 5 per cent. of Texas asphalt in Formula 27.

Class IV.—*Paraffin-Oil Mixtures.*—These are considerably softer than the paraffins, and also considerably weaker (more friable); however, they are fairly coherent. They would perhaps be preferable in the early stages of treatment, since they would be somewhat emollient. The most promising is the mixture with 10 per cent. of oil of theobroma (cacao butter, Formula 13); then come the one with 5 per cent. of liquid petrolatum (Formula 23), and this with beeswax (Formula 24), and that with 10 per cent. of olive oil (Formula 8). That with 20 per cent. of cacao butter (Formula 14) is scarcely sufficiently coherent. That with 5 per cent. of castor oil (Formula 9) was unpromising. The mixture with 20 per cent. of Venice turpentine (Formula 4) had the properties of Class V, but appeared undesirable.

Class V.—*Paraffin-Petrolatum Mixtures.*—These differ materially from the other classes. They are very soft and might be termed "solid ointments." They are rather greasy, and crumble easily; No. 3 (75 per cent. petrolatum) was really a cerate and would not form a workable film. No. 2 (50 per cent. petrolatum) would also be practically unworkable. Twenty per cent. petrolatum (Formula 1) and 10 per cent. petrolatum (Formula 5) form weak, but manageable films. The last (Formula 5) would be worth trying when a very soft film is desired, for instance, on very sensitive surfaces.

Application to the Skin.—A selected series of preparations were applied to the skin in the same manner as they would be used clinically. A strip of skin about an inch wide was painted with the melted wax; on this was laid a very thin layer of cotton and over this was painted another layer of the wax. The adjacent strip of the skin is now painted with a second preparation, and so on. (This will be a very suitable method of comparing the preparations clinically.) The strips are covered with a bandage and left on for at least an hour. The following presented no marked differences:

"Parawax" Paraffin	(16)
Paraffin-spermaceti	(11)
Paraffin-stearic acid	(12)
Paraffin, 48°	(17)
Paraffin-theobroma	(13)
"Ambrine"	(0)
Paraffin-petrolatum	(5)
"Mulene"	(20)
"Parresine"	(21)
Paraffin-beeswax	(10)
Paraffin-resin	(15)
Paraffin-liquid Paraffin	(23)
Paraffin-beeswax-liquid paraffin	(24)
Paraffin-asphalt mixtures	(25 and 26)

Paraffin-asphaltum gave a film that was somewhat adherent, but that was smooth, strong and so pliable that it could be wound about a pencil without cracking.

CONCLUSIONS

The preparation and mechanical properties of a series of paraffin-film mixtures suggest that the most important mechanical property of such films from the therapeutic standpoint is their hardness. It is suggested that several degrees of hardness might possess advantages under different conditions.

Surgeons who desire to experiment with the paraffin treatment of burns are urged to use simple preparations of known composition, so that their results can be compared, and so that any deficiencies may be met, and improvements made intelligently.

The physical and mechanical properties of a series of paraffin and mixtures are described. *Ordinary*

2. In a preliminary study of paraffin mixtures in the A. M. A. chemical laboratory, Ambrine was found to contain about 96 per cent. unsaponifiable matter (paraffin).—Ed.

paraffin, melting between 48 and 53 C. (118-128 F.), preferably about 50 C. (122 F.) appears to possess practically the mechanical properties of the French preparation, and is urged as the standard of comparison.

Paraffin-Asphaltum (Formula 26) gives a preparation of superior pliability.

The following additional formulas are suggested for clinical trial as preparations of increasing softness.

Paraffin-Spermaceti (Formula 11): Paraffin, 10 parts; spermaceti, 1 part.

Paraffin-Theobroma (Formula 13): Paraffin, 10 parts; theobroma oil, 1 part.

Paraffin-Petrolatum (Formula 5): Paraffin, 10 parts; yellow petrolatum, 1 part.

In comparing these films with each other, or with proprietary formulas, claimed points of superiority should be clearly established. Finally, experience may show it to be advantageous to add to the simple combinations I have suggested one or more medicinal agents such as resorcin, eucalyptus, scarlet red, etc.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 981)

NUTRITION IN NEPHRITIS

Diet in Acute Nephritis.—As already mentioned, a modified milk diet should be prescribed for the patient suffering with acute nephritis. The milk may be given hot or cold, preferably hot, sometimes predigested, sometimes diluted with a small amount of charged water, according to the patient's digestive ability. Fresh skimmed milk is frequently best for adults. As the phosphates are insufficiently excreted in nephritis, the phosphates of the milk may be precipitated into the intestine by precipitated calcium carbonate (from 0.5 to 1 gm.) taken three or four times a day. This, together with the phosphates of the milk, forms an insoluble compound, which is excreted by the intestine. Barley water is another beverage valuable for its nutritive properties, as a drink, and for its demulcent action on the gastro-intestinal tract. It may be advisable to give the patient well cooked and strained oatmeal gruel once or twice a day. Other simple, well prepared cereals may be substituted for the oatmeal.

As water is difficult of excretion in acute nephritis, the amount allowed the patient should be limited, according to the amount of urine excreted and the extent of the edema.

The patient's nutrition may be well maintained, not only for many days, but even for several weeks if necessary, on as limited an amount as 60 gm. of protein a day, although as soon as the kidney excretion is sufficiently increased it is advisable to increase this allowance to 90 or 100 gm. a day. The retained nonprotein nitrogen of the blood indicates the advisability of increasing or decreasing the protein element. Two quarts of milk contain slightly more than 60 gm. of protein; but many patients cannot well digest that amount of milk, and if the nitrogenous waste is not excreted by the kidneys it will not be readily excreted by the intestine or with the help of profuse perspiration. However, unless uremia or entire suppression of the urine contraindicates this course, a diet of from 1 to 3 pints of milk a day, barley water being used to dilute the milk or as an additional drink, together with a thin oatmeal gruel once or twice a day, furnishes sufficient nourishment during the active period of acute nephritis or during an acute exacerbation in chronic nephritis. It may be advisable to add cream to the milk in the proportion of one-half pint of cream to 3 pints of milk, or it may be better to use skimmed milk, according to the patient's ability to digest milk, the amount of gastro-intestinal disturbance caused, the ability of the kidneys to function, and whether or not the patient is uremic.

When the volume of urine begins to increase in this disease, there is an added excretion of solids. In the later stages of chronic nephritis this is frequently not true. When the kidneys are recovering from acute inflammation, although albumin and casts may persist in the urine for some time, the diet may be gradually increased by adding more cereal, rice, potatoes, eggs and fruits which do not contain benzoic acid, such as oranges, lemons and apples. It is as well to omit meat from the diet as long as albuminuria continues. If this condition continues longer than two months, however, the case becomes one of subacute or chronic nephritis, and the diet should be arranged accordingly, meat being allowed in small quantities. As soon as convalescence is established in acute nephritis, the patient should be given small doses of iron daily, and certain fresh vegetables, including beans and peas, which are rich in protein, should be allowed. Toast or zwieback may be given early in the treatment, the amount being gradually increased during convalescence.

The stage in the disease at which the amount of water allowed the patient should be increased is a question for careful consideration. If after a number of days the edema has not disappeared and the kidneys excrete only a small amount of water, it may be well to try the effect of giving more liquid. If this results in an increase in urine, the patient's system requires the added water; if, on the other hand, the urine is not increased, the water intake should again be reduced to the minimum. However, when the kidneys are functioning well there is no advantage in forcing them to overwork by administering large amounts of water.

If the necessary treatment causes profuse perspiration, and if the impairment of kidney function causes the retention of poisons and nonprotein nitrogen in the blood, these poisons must become more concentrated. The same is true when it is deemed advisable to produce watery bowel movements. Consequently, the effect of profuse catharsis and of profuse sweating on the character of the blood must be considered, as uremia may be precipitated by too strenuous treatment. Therefore, when profuse sweating occurs, or if profuse catharsis is caused, plenty of water should be imbibed. Although many toxins and salts may be excreted by the bowels, only a small portion of the poisons retained by insufficient kidneys is excreted by the skin, which also carries off a small amount of salts, as evidenced by the staining of the clothing, the finding of crystals on the skin, and the odor of urine from the perspiration. Emphatically, however, it is most unlikely that profuse perspiration, or catharsis to prostration, is indicated or of advantage in acute nephritis or in uremia. A diet such as will reduce nitrogen waste and salts to the minimum, and, if necessary, venesection to relieve the system of a certain amount of toxin-carrying blood, appears more rational than the doubtful method of concentrating the poisons in the blood.

If uremia apparently is imminent, the diet should be reduced to the smallest amount, perhaps a pint of milk and a pint of barley water a day. If edema is extensive, the amount of water taken may be reduced to a tablespoonful or an ounce at a time. If the patient does not improve rapidly, the treatment becomes that of uremia.

When the elimination of salt from the diet has resulted in the absorption of the edema or effusions to a certain extent, small amounts of salt and a little more water may be added to the diet. If the patient continues to improve and the edema does not increase, the salt and water may be gradually increased to the normal amount. Too long abstinence from sodium chlorid is detrimental to the tissues, and interferes with the normal production of hydrochloric acid in the stomach.

When an acute congestion or a subacute inflammation of the kidneys develops on a chronic nephritis, the treatment becomes that of acute nephritis.

Diet in Chronic Nephritis.—In changing the diet of a patient suffering with chronic nephritis, it should be recognized that it is inadvisable, for the sake of assisting the kidneys to overwork or injure other parts of the body. Care must be taken not to deprive the patient too long of needed elements of nutrition; nor should his fuel be radically changed from anthracite to bituminous coal, so to speak, as this will result in a radical change in his digestion and metabolism. A temporary radical change in diet or a gradual change to a radically different diet may be advisable; but the effect of this procedure on the patient must be carefully noted.

The necessity of withholding salt from the diet has already been discussed. The amount of nitrogen allowed in chronic nephritis is also of great importance; frequently nitrogen may be excreted when the salt is not; but the excretion of both nitrogen and salt is generally impaired.

Frothingham and Smillie[104] find, as have others, that the phenolsulphonephthalein excretion is not much modified by diet. They find that the blood pressure is not much lowered in chronic nephritis by a low nitrogen diet, but it does fall on rest, and when a low salt diet has eliminated retained sodium chlorid.

When the nonprotein nitrogen of the blood is increased, a low nitrogen diet generally reduces it, so that apparently the only valid reason for giving a very low protein diet in chronic nephritis is the elimination of nitrogen from the blood. High protein diets in chronic nephritis should be entirely prohibited, although, unless the case is one of uremia, a sufficient number of calories of protein must be given to keep up the strength of the patient.

No disease requires more careful regulation of diet than chronic nephritis. Excess in any elements of food necessary for nutrition causes loss of appetite, indigestion and retention of waste matter.

Not more than 90 gm. — or 3,000 calories of protein, represented mostly by carbohydrates and fats — and salt and water in exactly sufficient quantities should compose the diet when elimination is fairly good with an ordinary amount of exercise. The greater the muscular exercise, provided the elimination is sufficient, the greater the amount of food required. Strenuous physical exercise may, however, cause an increase of nitrogenous waste (especially creatin), which impaired kidneys cannot rapidly eliminate, and poisoning, verging on uremia, may occur. Hence such exercise should be prohibited. Also exposure to severe cold should be avoided.

When nitrogen is retained, the amount of protein consumed must be reduced; in overweight the amount of starch and fat must be reduced; in renal edema the amount of salt must be reduced; in insufficiency of the heart the amount of water must be reduced. When estimating the amount of protein intake, it should be remembered that milk and skimmed milk are rich in proteins. A straight milk diet for a chronic nephritic is usually to be avoided, as quarts of milk must be imbibed in order to obtain the required number of calories of protein. The ingestion of this great quantity of milk causes indigestion, overtaxes the heart, may cause hydremia and edema, and places too great a strain on the kidneys. The caloric and protein value of foods need not be set forth here, as this information is accessible in books on diet.

The diet selected should be based on the excretory ability of the kidneys,[105] the nonprotein nitrogen content of the blood, the condition of the heart, the blood pressure, the state of the digestion, the weight of the patient, and the physical and mental work required of him. The elements of this carefully selected diet should be varied from day to day (though each week may represent the food of the week before), as otherwise the patient loses his appetite and food becomes repugnant to him. It is well for the patient to have nothing but skimmed milk one day each week. This allows his blood and tissues to be relieved of retained excretory products. Also, if possible, one day of complete rest each week is advisable.

It has not been shown that fresh fish, poultry and meat (not rich in purins, as kidneys, sweetbreads, liver and shad roe) are any more harmful to the nephritic patient than are vegetable proteins, such as nuts, peas, beans and oatmeal; but some patients may tolerate vegetable proteins better. There is no special difference between red and white meat, though the latter may be more easily digested. Boiled meats are better than those cooked in other ways because some of the extractives have been lost. For this reason meat soups should not be allowed to patients with nephritis, as they contain mostly meat extractives.

With extensive edema, so-called diuretic drugs are inadvisable; although for a short time they stimulate the kidneys to a slightly greater activity, these organs soon tire and the excretion diminishes.

As a diet treatment the Karell milk cure, first suggested by Phillippe Karell, in 1865, is often successful in edema due to cardiovascular-renal disease, but is not as valuable in other types of dropsy.

The Karell treatment may be carried out as follows: The patient receives 200 c.c. of milk, in four doses, at four hour intervals during the day, beginning early in the morning. This treatment is continued for about a week. The milk may be taken hot or cold, as the patient desires, but he is allowed no other fluid and no solid food. After this period of limited diet he is allowed one egg and a slice of dry toast a day, for two or three days; the food is then gradually increased during the next two weeks by adding an egg, more bread, rice or other cereal, so that at the end of this period he is back to his ordinary diet, that is, the diet considered correct for one in his condition. Whether

104. Frothingham, Channing, Jr., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

105. For test diets for nephritics see Janeway: Am. Jour. Med. Sc., 1916, **151**, 157.

or not a little meat should be allowed depends on the character of the nephritis and on the absence or presence of uremic symptoms. During this starvation period an enema or some vegetable cathartic should be used. If the patient suffers from extreme thirst, the amount of water allowed may be slightly increased, or if hunger becomes unendurable, he may be allowed a little more toast. If the edema is largely cardiac, he may be allowed a small amount of salt.

This is a rigid form of the Karell treatment. Modification of this treatment is made by limiting the diet to skimmed milk and allowing more cereal.

Whether digitalis should be given depends entirely on whether the edema is cardiac or renal. If the chronic nephritis is apparently superimposed on a chronic heart insufficiency, digitalis may be of marked benefit; on the other hand, if there are symptoms and signs of uremia, and if the edema is largely due to renal insufficiency, digitalis may make the condition worse. When the blood pressure is high, the retention nitrogen increased, and the output of urinary solids greatly decreased, digitalis is most decidedly contraindicated.

When there is a sudden change in diet, such as a change from milk to meat or from meat to milk, the albumin in the urine may be found temporarily increased, probably returning, in a few days, to the normal amount.

The great danger from meat extractives, meat broths, etc., lies in the creatin present in these extractives, as it has been shown that when creatin and creatinin are increased in the blood the condition is menacing. Hence the patient with chronic nephritis should not be allowed to eat meat stock soups, meat broths, or large quantities of meat. Eggs and milk contain very little creatin, and vegetables not any. When meat is entirely removed from the diet, such creatinin as appears in the urine must be produced by the patient's own muscles.

However true it may be that alcohol does not often directly injure the kidney structure, as overindulgence in alcohol results in gastro-intestinal indigestion and disturbance of the functioning power of the liver, secondary irritation of the kidneys inevitably occurs. Consequently, a person with chronic nephritis should, as a rule, be forbidden to partake of alcohol in any form.

In deciding the amount and character of the protein diet sufficient for a patient with chronic nephritis, we must not underestimate the needs of the body. If, on an ordinary protein diet it is found that the blood retains nonprotein nitrogen, the protein must, for a time at least, be reduced. If, as recently shown by Mosenthal and Richards,[106] even the consumption of large amounts of protein does not increase the nitrogen output or cause retained nonprotein nitrogen in the blood, the extra nitrogen or protein must be stored somewhere in the body, and we deduce the fact that this added protein was necessary to the patient. In other words, we must be careful not to underfeed the patient while trying not to overfeed him. There is no doubt that the life of many a nephritic patient has been shortened by the absorption of too little protein and too much milk, just as many a diabetic patient has suffered excessively from the lack of carbohydrate food.

(To be continued)

106. Mosenthal, H. O., and Richards, A. E.: The Interpretation of a Positive Nitrogen Balance in Nephritis, Arch. Int. Med., February, 1916, p. 329.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

FERRIC CACODYLATE.—Ferri Cacodylas.—Iron Cacodylate.—A ferric salt of cacodylic acid containing from 39.7 to 44.9 per cent. arsenic (As).

Actions and Uses.—Ferric cacodylate has the properties of iron salts and of arsenic. Its use has been proposed in conditions in which the effects of iron and the mild arsenic action of cacodylates is desired.

Dosage.—From 0.015 to 0.1 Gm. (¼ to 1½ grains).

Ampuls Iron Cacodylate-Mulford, 0.03 Gm. (1/2 gr.).—Each ampule contains iron cacodylate, 0.03 Gm. (½ grain), in 1 Cc.

Prepared by H. K. Mulford Company, Philadelphia.

Ampoules Iron Cacodylate, Squibb, 0.03 Gm. (1/2 gr.).—Each ampule contains iron cacodylate, 0.03 Gm. (½ grain), in 1 Cc.

Prepared by E. R. Squibb and Sons, New York City.

Ferric cacodylate occurs as a slight grayish-brown powder, having an apple-like odor. An aqueous solution of the salt is acid to litmus and to phenolphthalein. One part of ferric cacodylate is soluble in about 16 parts of cold water.

Ferric cacodylate loses about 5 per cent. of its weight when dried at 100 C.

With silver nitrate test solution, an aqueous solution of the salt (1:20) yields a white precipitate, soluble in nitric acid or ammonia water.

A mixture of 1 Cc. of an aqueous solution (1:100) of the salt with 10 Cc. of hypophosphorus acid develops the disgusting odor of cacodyl (caution on account of the extreme poisonous nature of the gas).

The ferric cacodylate used in the preparation of Ampuls Iron Cacodylate-Mulford, 0.03 Gm., complies to the following tests:

No turbidity is produced in 10 Cc. of an aqueous solution of the salt (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or on heating (*monomethylarsenate*). No yellow precipitate is produced in an aqueous solution of the salt (1:20) by ammonium molybdate test solution; nor is a yellow precipitate produced by sodium thiosulphate test solution. A white turbidity, but no yellow precipitate, is produced in 10 Cc. of an aqueous solution of the salt (1:20), acidulated with hydrochloric acid, on addition of 10 Cc. of hydrogen sulphide test solution. A portion of an aqueous solution of the salt (1:20), acidulated with hydrochloric acid, is not rendered turbid at once by barium chloride test solution.

Dissolve about 1 Gm. of ferric cacodylate, accurately weighed, in 200 Cc. distilled water, then titrate with normal sodium hydroxide volumetric solution, using 5 Cc. of phenolphthalein test solution as indicator. Each gram of ferric cacodylate requires not less than 5.3 Cc. nor more than 5.6 Cc. of normal sodium hydroxide volumetric solution; showing not less than 39.7 per cent. nor more than 41.9 per cent. arsenic (As). Theoretically ferric cacodylate, $Fe[(CH_3)_2AsO.O]_3$, contains 48.1 per cent. arsenic.

The ferric cacodylate used in the preparation of Ampoules Iron Cacodylate, Squibbs, 0.03 Gm., complies to the following tests:

An aqueous solution of ferric cacodylate (1:20) does not at once become blue on the addition of potassium ferricyanide test solution (*ferrous iron*).

A few drops of an aqueous solution of ferric cacodylate (1:100) mixed with 2 Cc. of hypophosphorus acid in a stoppered test tube develops the odor of cacodyl within one hour.

Five Cc. portions of an aqueous solution of ferric cacodylate (1:20) does not become turbid on the addition of silver nitrate test solution, lead acetate test solution or cobalt nitrate test solution (*monomethylarsenate*).

No turbidity is produced in 5 Cc. of an aqueous solution of ferric cacodylate (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or on heating (*monomethylarsenate*).

An aqueous solution of ferric cacodylate (1:20), from which the iron has been removed by precipitation with ammonia water and filtering, acidulated with hydrochloric acid, yields on addition of an equal volume of hydrogen sulphide test solution not more than a slight coloration (*heavy metals and arsenites.*)

Disease Incidence in China.—Tuberculosis is the greatest disease plague in China, as it is one of the greatest in the west. Next to tuberculosis rank the venereal diseases. Closely following are the parasitic water-borne diseases, as the typhoids, dysenteries and cholera. It is hard indeed to trace any acquired or inherited lack of susceptibility to these in the Chinese. They are undoubtedly as common if not more common than in the west. In fact, practically all of our western diseases flourish luxuriantly in China and usually claim a mortality higher than with us.—Dr. Alfred C. Reed, *Scientific Monthly*, January, 1917.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, APRIL 7, 1917

THE IMMEDIATE EMERGENCY

If the President increases the army to the full strength, as provided by the Defense Act of 1916, there will be required 1,000 additional men for the Medical Corps of the Army — that is, for the regular service, not including the Reserve Corps. THIS IS AN ACTUAL PRESSING NEED WHETHER THERE IS WAR OR NOT. But there is also pressing need for more men in the Medical Reserve Corps. There are at present between 2,000 and 2,500 commissioned men in this corps. But of these, probably 20 per cent., for various reasons, would be found not available for active service when the actual emergency arose. If the recommendation in the President's message of last Monday, calling for an additional 500,000 men, is adopted, it means an immediate need for 3,500 additional medical officers.[1] These are facts that the medical profession of our country must bear in mind. Elsewhere we have stated that the medical profession will be prepared; may we emphasize that preparedness will mean sacrifice on the part of many medical men.

COLLOIDS, ACIDS AND KIDNEY SECRETION

Many of our readers are familiar with the view of Martin H. Fischer regarding the rôle of colloids in certain normal and pathologic phenomena, especially those concerned in the secretory activities of the kidneys. From a physicochemical point of view, the renal membrane which forms the central factor in the production of the urine is constituted of colloid substances in the nature of proteins. Starting with the analogy of the behavior of other colloids, such as fibrin and gelatin toward a variety of mediums — solutions of acids, bases, neutral salts and nonelectrolytes — Fischer has attempted to apply his observations to the problems of the behavior of secretory structures. As a confessedly rough model to illustrate some phases of urinary secretion, he has pictured a layer of organic colloid, like fibrin, through which solutions of various kinds may pass at constant pressure. Through such a colloid partition water or a "physiologic" salt solution passes at a certain rate. If the traversing solution is made acid, the colloid swells and lowers the amount of the artificial "secretion" to the point of stoppage. Salts can overcome the swelling effect of the acid on the colloid so that the passage of fluid is reestablished. It is also asserted that a more "acid" kidney will tend to retain more water than one in a less acid condition. Excretion will then be reduced because less water will be free for excretion.

Among the criticisms which have been directed against this explanation of altered kidney secretion, as it is observed in certain forms of nephritis, is the contention that in the body fluids the hydrogen ion concentration never reaches the degree that is essential for the colloid-altering effects just referred to in outline. The question here raised has lately been investigated by Reemelin and Isaacs,[1] who have also considered whether the varying reaction to which the kidney cells may be subjected as colloid structures affect the diffusion of the urea, sugar and other substances through the interposed membrane. They have perfused the blood vessels of excised kidneys with solutions of known composition in which the hydrogen ion concentrations were intentionally varied within limits comparable with those existing under actual conditions of life.

The results suggest that permeability of the renal structures may be altered by very small changes in the reaction of the fluids to which the physiologic membranes are exposed. Thus during the perfusion of saline solution containing urea, and within the physiologic limits of hydrogen ion concentration, the kidney colloids secrete more urea, the less acid the perfusing solution. The water secretion increases with the decrease in acidity. The amount of urea retained in the kidney colloids increases with the acidity. The urea excretory mechanism, while paralleling the water excretory mechanism in its operation, is quantitatively independent of it. These changes take place with very minute changes in the hydrogen ion concentration well within physiologic limits. The colloids of the body vary in their ability to hold dissolved substances under different degrees of hydrogen ion concentration. This suggests a basis for a mechanism of selective absorption and excretion.

Reemelin and Isaacs conclude that since the minute amounts of acid or alkali added to vary the hydrogen

1. Those desiring to offer their services should write to Surgeon-General Braisted, of the Navy, or to Surgeon-General Gorgas, of the Army, Washington, D. C., stating their age, when and where graduated in medicine, what practice they have been engaged in—what specialty, if any—and when they would be ready to respond to the call. This information should be accompanied with two letters of recommendation from physicians of good standing in the medical profession. This will save time.

1. Reemelin, E. B., and Isaacs, R.: A Study of the Conditions Involved in the Accumulation of Dissolved Substances in the Blood. I The Relation of Acidity to the Retention of Sugar and of Urea by the Colloids of the Blood and the Kidney, Am. Jour. Physiol., 1916, 42, 163.

ion concentration in their experiments on surviving kidneys are not enough to produce the effects on a basis of osmotic differences, they are dealing with a relationship between hydrogen ion concentration and colloids. It is of no interest to record the new facts and hypotheses associated with them without at this time debating the question of any further application to the living kidney.

EHRLICH AND VON BEHRING

On Aug. 20, 1915, Dr. Paul Ehrlich died from heart disease;[1] now the cable brings word that after long months of illness Dr. Emil Adolph von Behring is dead. He died April 1, 1917, aged 63. Behring was born March 15 and Ehrlich March 14, 1854, "twin sons of science and humanity," as they have been called; both, in 1890 and 1891, entered the service of the Institute for Infectious Diseases under Robert Koch became his assistants.

Behring's discovery of diphtheria antitoxin overshadowed his other work, but his research proved stimulating in many other ways. He was trained as an army medical man, and served as such at Posen, Bonn and Berlin, until appointed assistant at the Hygienic Institute and later at the Institute for Infectious Diseases. In 1894 he was called to the chair of hygiene at Halle and the year later to Marburg, where he has since made his home. Here he had charge of the Institute for Research, with its large medical farm, and to this he devoted most of the money that came to him in prizes and other ways. At the first distribution of the Nobel prizes, he was awarded the prize for the greatest discovery in medicine. This was in 1901. He had previously been the recipient of a prize of $5,000 from the Paris Académie de médecine, given to him in association with Roux of the Pasteur Institute. A prize of $10,000 was awarded him by the French Académie des sciences. He was also appointed a member of the Prussian privy council, the first physician, it is said, to be given that position. A title of nobility was conferred on him at the same time. Among his more recent scientific work are his improved antitetanus serum and his method of computing the total amount of blood.[2]

Previous to the time when he became assistant to Robert Koch, Behring had studied the questions of immunity and explained the immunity displayed by rats to anthrax as due to some property possessed by their blood serum. He had also decided (1884) that the action of iodoform is due to its neutralizing the toxins of pus-producing agents. These views of his seemed to be a return to the old discarded "humoral" conception of disease. Koch set him to studying disinfectants, seeking to discover some disinfectant with a therapeutic action on bacterial infection in general. A number of his conclusions have proved fundamental in our knowledge of sterilization, especially his discovery that certain disinfectants seem to have an elective action on certain bacteria. His most important discovery, however, was negative: he was unable to find any disinfectant which was powerful enough to affect bacteria through their protecting membrane without first irreparably injuring the tissue cells. This discovery drove him back to the study of bacterial toxins. He soon succeeded in immunizing animals with attenuated bacterial toxins against diphtheria and tetanus, and announced in 1890 that immunity is a humoral process, due to some newly acquired specific antitoxic power developed by the blood serum. This suggested the possibility of effectual internal disinfection of the infected organism by these newly discovered antitoxins, not in the sense that the antitoxins destroy the living parasites themselves, but that they make the bacterial toxins harmless for the carrier. The next step was the production of diphtheria antitoxin, and Ehrlich aided Behring materially in overcoming the practical difficulties, so that antitoxin was soon ready to enter on its triumphant career. Ehrlich's previous research had been mainly on the histology of the blood and on the behavior of the anilin dyes in the living body, their distribution in the body, and elective action on different tissues. Even before he entered the Institute for Infectious Diseases he had decided that the distribution of a substance in the body was a function of its chemical constitution. The very day after Koch's announcement of the discovery of the tubercle bacillus, Ehrlich was able to inform him of a new method of staining the bacilli. This was merely a by-product of his biochemical research, but it has proved of great practical value ever since. As soon as Koch had perfected the plans for his Institute for Infectious Diseases, Ehrlich was called to work with him. In Behring's diphtheria antitoxin, Ehrlich found the realization of his surmises in respect to the binding properties of certain chemical groups with specific attraction for each other, for the antitoxin seems to have no affinity for anything except the specific toxin which elicits its production. His research on abrin and ricin immunity further illuminated the dark field of immunity. The two research workers soon separated, Behring accepting the chair of hygiene at Halle but soon leaving it (1895) for the Institute for Hygiene and Experimental Therapy at Marburg, where he has since resided, Ehrlich going to the Serum Institute at Steglitz and then (1899) to the Institute for Experimental Therapy at Frankfurt, the scene of his further labors. Behring soon published his great work "Allgemeine Therapie der Infektionskrankheiten," which presented numerous new data on obtaining and neutralizing toxins and producing antitoxins. Ehrlich followed

1. The Death of Paul Ehrlich, THE JOURNAL A. M. A., Aug. 28, 1915, p. 814; Sept. 25, 1915, p. 1123.

2. Von Behring, E. A.: Mein Tetanusimmunserum, Berl. klin. Wchnschr., 1915, 52, 121; abstr., THE JOURNAL A. M. A., March 13, 1915, p. 947.

it with his important "Wertbemessung des Diphtherie-serums" which was the groundwork on which has been built up the official standardization of curative and preventive serums. As one writer remarks, Behring forged the sword of serotherapy, but Ehrlich ground its edge.

After this, Behring devoted his research mainly to tuberculosis and Ehrlich to cancer, but neither accomplished much of practical therapeutic importance in these lines, although they discovered many new facts. Behring was the first to establish that it is possible to render a certain species of animals immune to tuberculosis. No practical therapeutic results have been derived from this fact to date, but his conception of the nature and development of pulmonary tuberculosis has proved stimulating to research in various lines. When Ehrlich returned to his earlier field of work, his discoveries in the line of chemotherapy produced salvarsan. Behring also returned to his earlier field, diphtheria, and developed a means of inoculating against diphtheria. By injecting a practically balanced mixture of diphtheria toxin and antitoxin, the human body proceeds to elaborate its own antitoxin. He found that the serum from persons thus actively immunized might be used for curative and preventive purposes. He hoped by this means to vaccinate people against diphtheria so that in time diphtheria would be exterminated as completely as smallpox now is.[3] Both Behring and Ehrlich were awarded Nobel prizes[4] besides honors of all kinds the world around.[5]

NEW OBSERVATIONS REGARDING THE CELLS ACTIVE IN BONE ABSORPTION AND RECONSTRUCTION

The traditional description of the development of bone begins with the formation of fetal cartilage, followed by an enlargement of the cartilage cells with a rearrangement into radiating cell rows at the center of ossification. The next step consists in the absorption of the cartilage matrix and finally also of the cartilage cells. Calcification now begins in the remnants of the matrix. Osteogenic tissue makes its appearance, and there gradually arises a deposit of primary bone by the osteoblasts on the calcified cartilage. This is succeeded by the absorption of portions of the primary bone by a different type of cells — the osteoclasts — to form the large central marrow cavities. Finally a deposit of new bone proceeds at the periphery, resulting in the ultimate more compact osseous structure.

The alleged activity of the giant cell osteoclasts is believed to determine the rapid absorption of newly formed primary or primitive bone in preparation for the subsequent more permanent ossification processes. In the erosion of calcified cartilage and provisional bone during endochondral ossification, the osteoclasts have seemed to resemble the phagocytes which act as scavengers in many parts of the body. Evans and Schulemann[1] have demonstrated that such cells, sometimes termed macrophages, are united by a common physiologic activity into a great group, although they are anatomically heterogeneous and scattered about the body. They exhibit manifestations of vital staining when certain dyes of the benzidin group of pigments are introduced into the circulation during life; and this is believed to be due to an engulfment of dye precisely as bacilli or other foreign particles are engulfed by phagocytes. It occurred to Shipley and Macklin[2] of the Department of Anatomy at Johns Hopkins University to test the hypothesis of the phagocytic character of the osteoclasts by noting their behavior under vital staining.

The structural features of the osteoclasts of the bone marrow, together with their supposed destructive action, led Shipley and Macklin to expect, in the osteoclasts of animals whose bone and cartilage were undergoing rapid erosion, an ingestive reaction, identical with that of the macrophages, toward the high molecular dyestuffs and colloid solutions. And this reaction was looked for in spite of the fact that the cytoplasm of the osteoclasts shows none of the evidences of phagocytic activity in the form of ingested pigment or red blood cells, such as are found in the macrophagic reticulo-endothelium of the bone marrow and the other fixed phagocytes of the body. It is perfectly possible to think of these cells as able to drink in the ultramicrons of colloidal or semicolloidal solutions (in other words, the finer material subdivisions), while, because of the coarser physical state of the substance, or for other reasons, they are not able to ingest the masses of large size which, enclosed in the cytoplasm of a cell, are the usually accepted evidence of its phagocytic powers. The idea, therefore, presented itself of staining young and growing animals with azo dyestuffs and metallic colloids and studying the young osseous tissue.

It was found in these studies with the aid of vital staining that the osseous tissue may be deeply colored, and that the stain is much more marked in the growing than in the fully developed bone. But although this avidity for the dye had some obvious relation to osteogenesis, contrary to expectation no dye whatever was found in the osteoclasts, as experience with other giant cells would have led one to anticipate. The investigators conclude, therefore, that if the osteoclasts have any part in the resorption of calcified cartilage and bone, that part must be played either through the pressure of their bodies against it or the production of a

3. Behring's New Method of Inoculation Against Diphtheria, editorial, THE JOURNAL A. M. A., June 28, 1913, p. 2051.
4. Ehrlich's prize was divided with Metchnikoff, 1908.
5. The material for this editorial was taken largely from the Festschrift to Drs. Ehrlich and von Behring, Deutsch. med. Wchnschr., 1914, **40**, 521.

1. Evans and Schulemann: Science, 1914, **39**, 443.
2. Shipley, P. G., and Macklin, C. C.: Some Features of Osteogenesis in the Light of Vital Staining, Am. Jour. Physiol., 1916, **42**, 117.

secretion which can dissolve or at least disintegrate the calcareous tissue with which it comes in contact. If the erosion of cartilage and bone is accompanied by phagocytosis of disintegrated tissue fragments, that operation must be carried on by other elements in the marrow cavity. The evidence all points to the ordinary reticulo-endothelial cells of the marrow reticulum. It is these which are most numerous in areas in which the resorption of bone and cartilage is most active. Shipley and Macklin accordingly conclude that these cells specialized to ingest small particles are active in the work of ingesting the débris of bone and cartilage absorption and clearing it away. How this is actually accomplished remains an interesting speculation.

THE STUDY OF A DIURETIC

The therapeutic use of diuretic procedures involves two frequently quite dissociated underlying features. The urine serves to remove undesirable products from the body through the medium of secretion by the kidneys. Substances arising in metabolism, and foreign compounds, such as poisons, drugs or toxins of disease, are thus eliminated promptly, although it is not always duly realized that certain substances tend to leave the body by secretion into the bowel rather than in the urine. So far as diuresis increases the output of toxic or waste products, it may often serve a useful purpose. Sometimes water accumulates in the tissues, particularly if the circulation is impaired; diuresis affords the most satisfactory method of disposing of accumulations, provided the kidneys are capable of functioning normally.

Many clinicians think of diuretics solely from the standpoint of their efficiency in removing water from the body. It happens, however, that often the important problem is the removal of substances, other than water, for which the kidneys are no longer so readily permeable. Cases frequently arise in which there is considerable retention of excretory products without any edema and without any occasion for the elimination of water alone from the body. Furthermore, edema itself usually does comparatively little harm except in patients with marked cardiac insufficiency, when it forms a troublesome symptom and its removal brings relief.

These varied possible factors in relation to the efficiency or desirability of diuretic procedures indicate the need of careful studies to ascertain precisely what each type of alleged diuretic accomplishes in the varied conditions presented by healthy or impaired kidneys as well as in cardiorenal disease. Only by such investigations can the use of diuretics be put on a rational basis, and the indications or contraindications of special drugs established. The assertion has been made, for example, that diuretics are contraindicated in many cases of acute nephritis because they act to increase the work of the kidney and are irritants which may augment the pathologic process already existent in the kidney.

Christian[1] and his associates in the Medical Clinic of the Peter Bent Brigham Hospital have made extensive experimental studies on these questions. They conclude, particularly from observations on animals, that diuretics are ineffectual or often injurious in acute experimental nephritis. Christian has pointed out that frequently when the kidney is damaged, diuretics do not cause a diuresis; or, if a diuresis occurs, there may be evidence of marked renal fatigue subsequent to the diuresis. Skepticism has been expressed as to the efficacy of diuretic drugs in cases of nephritis in which the kidney is seriously damaged. Recently he has made a more exhaustive study[2] of a single widely used diuretic, theocin (theophyllin),[3] on a group of patients with acute nephritis or chronic nephritis or cardiorenal disease. The results are quite in accord with the observations on animals. The drug has no constant diuretic action. In persons with slight or no edema it has little or no therapeutic value, as diuresis is not constantly produced, elimination of nitrogenous substances quite often is slightly if at all increased, and renal function is frequently decreased after theocin has been given.

When theophyllin actually produces diuresis, it usually is only the output of water and sodium chlorid that is enhanced. These substances are not necessarily the most objectionable. As Christian says, there is more evidence that nitrogenous substances of some kind are toxic, but nitrogen elimination is much less constantly increased by theocin and quite often is actually decreased. So, from this point of view we might question the therapeutic efficiency of theocin in cases of nephritis with moderate amounts of edema. Perhaps we can asssume that a diuretic is used in this type of case to increase renal efficiency, to stimulate the kidney to increased work. Measured by water or sodium chlorid output, theocin might be said to accomplish this; measured by nitrogen elimination, function is little improved, often is made worse.

In cardiorenal cases with marked edema, theocin is of therapeutic value, because it produces, especially in conjunction with digitalis, an active diuresis with increased sodium chlorid elimination, which decreases edema, a troublesome feature in these cases. As there is evidence that, following an active diuresis, renal function is depressed, an intermittent usage of theocin seems preferable to a continuous usage in cardiorenal cases with edema.

1. Christian, H. A.: Am. Jour. Med. Sc., 1916, **151**, 625.
2. Christian, H. A.: Some Studies of a Diuretic (Theocin), Arch. Int. Med., November, 1916, p. 606.
3. Theocin (N. N. R., 1916, p. 380) is a proprietary name applied to a synthetically produced theophyllin. Theophyllin is isomeric with theobromin, that is, its chemical elements and the percentage proportions are the same as those of theobromin. It differs from theobromin in that certain groups are arranged differently. Theobromin is closely related to caffein. While theobromin is dimethyl-xanthin, caffein is trimethylxanthin (N. N. R., 1916, p. 375).

Current Comment

MEDICAL PREPAREDNESS

When the president issued a call for volunteers at the time of the Spanish-American War, April, 1898, the medical services of the army and navy were about to hold the regular examinations to fill the ranks from losses due to the ordinary depletions in time of peace. There was no call for the mobilization of the medical profession as comes today. The fact that the life of the army is almost dependent on its medical staff was not appreciated then. There was much talk of the possibility of yellow fever attacking the troops, but no one realized the immense responsibility soon to fall on the medical corps, in connection not only with this disease, but also with the infectious diseases and sanitary problems inherent in the life of an army. There had been no campaign of preparedness, no enlistment of physicians, no establishment of and instruction of reserve corps. But the experience of that day had its effect. Over a year ago the American National Red Cross began to organize and to equip complete base hospital units. As we noted last week, twenty-nine of these base hospitals have been organized, twenty-two of which are completely ready for service and to go whenever and wherever ordered. Elsewhere in this issue[1] attention is called to the work of the Council of National Defense and the Committee of American Physicians on Medical Preparedness who have been enrolling and classifying the medical profession for service, and listing available stationary hospitals for the wounded. Even were this all that had been done in the way of medical preparedness, it would be far ahead of anything thought possible a few years ago. This preparedness applies both to the army and to the navy services. There still remains, however, much to be done. What has been accomplished must be regarded as but a beginning for what may eventuate. We must not make the mistake of underestimating what is before us. It is possible that our land forces may not be called on for actual fighting. But we do not know. It is possible that the number of men now called for may be all that will be required; on the other hand, 2,000,000 or 3,000,000 may be required. Preparedness means readiness for anything that may occur. The medical profession must and will be ready. Of this we are sure.

AN OPPORTUNITY FOR THE YOUNGER MAN

Our country is calling for volunteers. There is a need for medical men for both the Army and Navy. Without doubt the patriotism in our profession will prompt such a complete response that there will be no difficulty whatever in getting as many medical men as may be needed for active work. We are referring, here, not to the extra need on account of the declaration of war which, as we write, seems to be imminent, but to the fact, which we would emphasize, that the Medical departments of the Navy and of the Army have been and are urgently calling for men to enter these services permanently. Neither is full; the navy especially is shorthanded. During the last year or two we have called attention to the advantages offered in both of these services. Last week we printed an article by Major Noble setting forth the advantages of the Army Medical Corps as a career. Next week we hope to publish a similar article regarding the Medical Corps of the Navy, by one of the officers of that corps. Of course this call is limited to the younger men, those under 32. Within a few weeks over 3,000 young physicians will be graduated from the medical schools of our country. There are 2,641 senior students in the Class A schools. In addition, there are thousands of young men acting as interns in hospitals and young men in active practice who have not yet become "anchored." These are the men who, far from making a sacrifice in taking such positions, would be availing themselves of a great opportunity for a life-work. The Surgeon-General of the Navy has, with some success, directly appealed to the senior students of the leading medical colleges and, as will be noticed elsewhere, arrangements have been made by which the senior students of satisfactory standing who accept the call will be excused for the remainder of the session without forfeit. The country is calling to the young men just entering, or who have just entered, on the practice of medicine. May we again remind these younger men of medicine that there is offered not only an opportunity for development, but also an opening into a life work in which at this time advancement will be rapid for those who are capable and deserving.

THE ARMY SURGEON

It is safe to say that the majority of physicians who are considering offering their services to the government at this time have only a slight conception of the difference between military duties and civilian practice. The glamour of surgery has been cast over the duties of the physician in war time; but the work of the surgeon usually begins only after the duty of the soldier is done. The surgeon repairs the wounded man. The duties of the physician as a medical officer begin with the enlistment of the man before he is a soldier, take him from the recruiting office into the camp of mobilization, accompany him into the zone of war, select the site for the camp, keep the soldier fit for his duty as a fighting man, guard him from the devastation of infectious diseases, and prevent his incapacitation from exposure, from bad food and from the thousand and one other conditions of army life which are more dangerous than the bullet of the enemy. There is work for the epidemiologist, for the laboratory man, for the ophthalmologist, for the laryngologist, for the dentist and for the diagnostician, as well as for the internist and the surgeon. The surgeon by no means comes first. If any fact has become evident during the last three years it is that preventive medicine is the most important factor in keeping an army "fit," and, therefore, in the final determination as to which side shall be the victor.

1. See page 1060.

THE PUBLIC ASKING QUESTIONS

Do you know the extent of the educational work of the Propaganda department of THE JOURNAL as it relates to the general public? We ask the question because we are led to believe from comments made by visitors to the Association's building that few physicians realize the extent of the correspondence carried on in that department. It may not visualize the matter especially well to say that during the past four years the Propaganda department has received nearly 16,000 letters of inquiry — a very considerable portion of them from laymen — regarding "patent medicines" or some form of quackery. Over 95 per cent. of these letters were satisfactorily answered. This phase of the Propaganda department's activities has developed without any publicity save what naturally came as a result of service rendered. But the public is becoming more and more interested, and a recent incident shows what might be expected were the public more generally informed on this part of our work. The *Ladies' Home Journal* for April had a brief paragraph calling attention to the Propaganda department. It appeared in a department, edited by Dudley Harmon, which chronicles what the government and other organizations are doing in the public interest. The paragraph, entitled "The Medicine You are Taking," reads:

"Uncle Sam knows a lot about 'patent medicines,' but curiously enough his own laws won't permit him to tell you much of what he knows. The laws under which he has prosecuted scores of manufacturers have fallen far short of entirely eliminating the bottled poisons sold as health-giving medicines, while millions are deluded daily by the false and extravagant claims made in advertisements of alleged 'cures' and 'treatments.'

"But there are people in this country able and unafraid to tell you the whole truth about the 'patent-medicine' fakes and dangers. The Propaganda Department of the American Medical Association knows even more about them than the Government itself; and, what is more, it has as its sole purpose their exposure to the medical profession and to the public.

"To the limit of its capacity, this Propaganda Department, supported by the medical profession, is willing to help and to advise you. So, if you are in doubt as to the honesty or value of any particular preparation, or wish to help in the cause of educating the public, communicate with this organization at 535 North Dearborn Street, Chicago, Illinois. As a matter of courtesy, you might include a two-cent stamp with your letter when asking for assistance."

The day after this issue of the *Ladies' Home Journal* reached the public THE JOURNAL began to hear from it. While it was to be expected that some inquiries would result from this publicity, the extent of the public's interest in the subject of self-medication was underestimated. The Propaganda department has been inundated with inquiries that have poured in on it. The letters, naturally most of them from women, have come from all parts of the country — from Florida to Saskatchewan. As we write, they are averaging thirty a day. And the end, apparently, is not yet in sight.

The Assessors.—As the bookkeeper and accountant are the recorder and analyst of business transactions, so the registrars of births and deaths provide the means of assessing the results of public health administration.—Haven Emerson, M.D., "Preparedness for Health."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

New Officers.—The George Washington University Medical Society, composed of the alumni and faculty of the medical school, at a recent meeting elected Dr. W. Ashby Frankland, president; Dr. Coursen B. Conklin, vice president; Dr. Thomas Miller, secretary, and Dr. Edward G. Seibert, treasurer.

Revocation of License Sustained.—An official communication states that, March 16, the Court of Appeals of the District of Columbia sustained the action of the Board of Medical Supervisors in revoking the license of Dr. Thomas June Kemp. Dr. Kemp's license was revoked, May 29, 1916, on the ground of his having been convicted of a crime involving moral turpitude.

Duplex Report Cards for Reportable Diseases.—To facilitate the reporting of recoveries, each blank form to be used for the original report of a case now has attached to it a blank form on which to report the recovery. In instructions printed on the report card, the health officer suggests that when the physician fills in the report of the case he fill in also the attached recovery card, except date and signature, and detach it and hold to facilitate prompt report of the recovery at the proper time. The presence of the detached report card is expected to serve as a reminder to the physician of his duty to report the recovery, and if it be filled in while the report card is still before the physician, errors of name and address will be avoided. The physician is requested to leave the recovery card with the family of the patient if the physician discontinue attendance before recovery, as is frequently the case when the patient is suffering from measles, whooping cough and chickenpox.

ILLINOIS

Meet for Preparedness.—The Illinois Association of the Medical Reserve Corps is holding meetings every Tuesday evening to receive instruction from Major William N. Bispham, M. C., U. S. Army, with a view to better prepare themselves to serve the country in case they should be called into active service.

Norbury Dinner.—A dinner was given by philanthropists and social workers at Des Moines in honor of Dr. Frank P. Norbury, Jacksonville, March 13. Dr. Norbury delivered an address in which he outlined his work in mental hygiene. He also delivered a short address to the business men of Des Moines in which he explained how to establish a medical dispensary at every county seat in Iowa.

Infantile Paralysis Clinics.—Clinics for instruction in infantile paralysis are being held throughout the state by Dr. Clarence W. East, Evanston, representative of the state board of health. One clinic was held under the auspices of the Rock Island County Medical Association at Rock Island, another at Freeport under the auspices of the Stevenson County Medical Society, and a third at St. John's Hospital, Springfield.

Chicago

Fenger Memorial Grant.—The directors of the Fenger Memorial Association have made a grant of $400 to Pierce McKenzie for support of chemical and other work under the direction of Dr. E. R. LeCount. He will study the brain and other tissues from cases of heat stroke in order to determine, if possible, better than now known the cause of the high temperature in this condition.

Personal.—Dr. Frank C. Linden, president of the faculty and head of the department of medicine in Jenner Medical College, resigned from that institution, February 20, after having been connected with the college for sixteen years.——In a collision between automobiles on Lake Shore Drive, March 24, Dr. Alexander F. Stevenson sustained severe bruises.——Dr. Daniel A. K. Steele has been elected president of the consulting staff of the Municipal Tuberculosis Sanatorium and Dr. Merlin Z. Albro, secretary.

Hospital Changes Recommended.—In a report to the health commissioner of Chicago, Mrs. William R. Cubbins, director of the Citizens Committee, recommended the consolidation of the old and new Contagious Disease Hospitals under open management; the establishment of a laboratory for research

work in the new institution; the appointment of a consulting staff of physicians; the construction of two additional four-story wings to the new hospital; the painting and redecorating of the old hospital and the establishment of cubicles in the old hospital for the observation of patients and the isolation of suspected cases.

INDIANA

Hospital Wrecked by Explosion.—One end of the Schneck Memorial Hospital, Seymour, was wrecked recently by the explosion of the steam sterilizer.

Personal.—Dr. John L. Freeland, formerly superintendent of the City Hospital, Indianapolis, has moved to Rocky Ford, Colo.——The home of Dr. William Walkinshaw, Stillwell, was almost entirely destroyed by fire, March 22.——Dr. David J. Cummings, Medora, sustained a cerebral hemorrhage at his home, March 17, and is in a serious condition.——Dr. Samuel S. Washburn, Lafayette, for forty-three years a practitioner of Tippecanoe County, has retired from active practice.

KANSAS

Field Hospital for Kansas.—Capt. Seth A. Hammel, M. C., Kan. N. G., Topeka, has been authorized by the adjutant general to organize a field hospital company in Topeka.

Public Health Organization.—The Kansas branch of the American Public Health Association was organized at the University of Kansas, Lawrence, March 16, and the following officers were elected: president, Prof. C. A. Haskins, Lawrence, sanitary engineer of the state board of health; vice president, S. P. Elder, Atchison, and secretary-treasurer, Miss Myrtle Greenfield, Lawrence. Among the subjects discussed at the meeting were, "Problems of the Feebleminded," "School Sanitation," "Tuberculosis Problems" and "Public Health Nursing."

MARYLAND

Naval Hospital Base.—The Navy Department is making inquiries in Baltimore hospitals as to their equipment, and there is a strong belief among physicians that Baltimore will be selected as a great hospital base for that branch of the service. The United States Army has already selected Baltimore as one of the great hospital bases of the country, Johns Hopkins having been chosen.

Quarantine to Be Taken Over.—The board of estimates of Baltimore received a letter, March 20, from Asst. Surg.-Gen. Arthur H. Glennan, U. S. P. H. S., Washington, D. C., stating that the government will be ready to take over the Baltimore Quarantine about July 1. The government agrees to pay the city $176,775 for the station and its equipment, including buildings, land and boats.

Life Extension.—The first of a series of public lectures was held under the auspices of the Medical and Chirurgical Faculty of Maryland in Osler Hall, Baltimore, April 3, the topic under discussion being "The Extension of Life." Dr. Lewellys F. Barker, Baltimore, spoke on "The Man of Fifty Years," and Dr. Eugene Lyman Fisk, New York, on "Living Long and Living Well."

University of Maryland Senior Class to Graduate.—To determine those eligible to be called into the naval reserve force as assistant surgeons, a canvass among medical students of the University of Maryland will be taken, while awaiting the action of the State Board of Examiners on the suggestion of Dr. William C. Braisted, surgeon-general of the United States Navy, that the senior class of the university be graduated within the next few weeks. Intense interest in the national defense idea is being displayed among the students, and military training, under the supervision of an army officer, is being kept up.

Preparedness.—Members of the medical and dental professions filled Osler Hall, March 30, when they assembled to discuss war service. There were also present women practitioners, who manifested as much interest as the men. Dr. Thomas S. Cullen, president of the Baltimore Medical Society, presided and introduced Dr. William H. Welch, Baltimore, whose subject was "The Medical Profession and Preparedness." He gave an account of his visit to England and France, where he visited the various hospitals and laboratories. Major Robert E. Noble, M. C., U. S. Army, Washington, D. C., spoke of the doctors that the government needs and how it will use them. Speeches were also made by Lieutenant Wilson of the Naval Recruiting Office, and by Dr. Gordon Wilson, who told of what the doctors of Baltimore could and should do.

Personal.—Dr. William Rush Dunton, Jr., of the Sheppard and Enoch Pratt Hospital, Towson, has recently returned from a visit to Clifton Springs, N. Y., where he assisted in the incorporation of the National Society for the Promotion of Occupational Therapy, which has as its object the consolidation of workers among the blind, crippled, nervous, physically and mentally weak, who use work in varying degrees as a means of recovery.——Dr. Thomas B. Horton, Curtis Bay, who has been seriously ill with rheumatism for five weeks, is able to attend to his office practice. It is expected that within the next few days he will be able to leave his home.——Dr. Charles W. Rauschenbach of the University of Maryland has received his commission as lieutenant, Medical Corps, U. S. Army, and will report for duty in the near future.——Dr. John S. Green, Gittings, who has been seriously ill, is reported to be improving.

Fund to Equip Base Hospital.—At a meeting of business men of Baltimore at the Merchants' Club, Baltimore, March 30, the statement was made by the chairman of the committee that the sum of $30,000, the amount required for a base hospital, was in sight. Of this sum, $21,000 has already been subscribed. Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, who represented the Baltimore surgeons and physicians willing "to do their bit," was authorized to proceed with the organization and equipment of a base hospital. This hospital will be taken over and maintained by the War Department in case of hostilities. It will be one of thirty similar institutions organized in different cities, and will follow the army. Dr. Smith has been requested by the federal government to proceed as speedily as possible with the completion of the Red Cross base hospital. Four hundred surgeons, physicians, nurses, electricians, plumbers and carpenters are in the hospital organization. Among the members on the medical staff are Drs. William S. Baer, John M. T. Finney, Theodore C. Janeway, Walter A. Baetjer, Thomas R. Boggs, John Staige Davis and William A. Fisher, Jr., all of Baltimore.

NEW YORK

Public Health Association to Move.—The Rochester Public Health Association has sold its home at 95 Troup Street, and for the time being will rent accommodations for the continuance of the preventive, tuberculosis and dispensary work of the organization.

Disinfection of Water.—In order to equip the troops for the disinfection of drinking water, the state department of health is making a study of an outfit which will provide calcium hypochlorite in exactly the necessary quantities to disinfect 50 gallons of water, and after disinfection will remove the disagreeable taste due to the excess of chlorin.

Mobile Laboratory Unit.—Dr. Hermann M. Biggs announces that the division of laboratories for research is assembling, and preparations are being made for a mobile laboratory unit to establish diagnostic service at any point needed in connection with the mobilization of troops. The laboratory has also put up a large supply of bacterial vaccines against typhoid, paratyphoid and dysentery, and also large stocks of smallpox vaccine, diphtheria and tetanus antitoxin, pneumonia, meningitis and dysentery serums.

Scarlet Fever.—Scarlet fever is reported to be epidemic in Rochester, where more than 300 cases have been reported. There are already forty-two patients at the Municipal Hospital. There appear to be two forms of epidemic scarlet fever in Rochester, a severe outbreak which occurs every twenty to twenty-five years, and a milder form occurring in from four-year to six-year cycles.——March 19, there had been reported 130 cases of scarlet fever in Syracuse. Fifty-two patients were in the city hospital. The cases are chiefly mild in character.

Recommend Changes in Antinarcotic Law.—The committee on the drug evil of the committee of magistrates met recently to discuss needed changes in the Whitney law dealing with the use and distribution of narcotics. The committee suggested two amendments to the law, one compelling physicians to make a third copy of all prescriptions for narcotics, to be sent to the health department, and a second requiring that the board of health be informed as to the exact amount of narcotics kept in stock by all physicians. It was decided that these changes would make it easier for authorities to control the drug evil.

Health Officers as Army Examiners.—Health Commissioner Hermann M. Biggs has offered the services of all the health officers in the state, about 1,000 in number, to the military authorities, the idea being to use them in making preliminary

physical examination of recruits in case the country becomes involved in war. Dr. Biggs' offer has been accepted by the adjutant general of the state. The proposed plan is that health officers give prospective recruits a preliminary examination and that only those who can fulfil the physical requirements of the army will be passed on to the medical officers for final examination.

New York City

Medical Officers' Reserve Corps Recruiting.—Under the direction of Dr. Henry C. Coe, President of the Medical Officers' Reserve Corps, examination of applicants for the corps is being conducted at the New York Academy of Medicine, every afternoon excepting Saturdays, from 3 to 5 o'clock. This forms a part of a campaign to add men to the corps.

Baby Week.—The Babies' Welfare Association of New York City, in announcing that the first week in May has been designated as Baby Week throughout the country, urges all organizations to undertake local celebrations in the districts in which they work, and advises that in view of the present national situation no attempt be made to form a centrally organized committee like those of previous years.

Personal.—Dr. Frank H. Carber of the Mayo Clinic, Rochester, Minn., has joined the diagnostic staff of the Life Extension Institute.——Dr. Leon T. LeWald has been appointed professor of roentgenology at the University and Bellevue Hospital Medical College.——Dr. Charles Fisher, Brooklyn, sustained serious injuries of the arm in a collision between his automobile and another car.

Societies Endorse Antidrug Bill.—The Medical Society of the State of New York, the Medical Society of the County of New York and the Medical Economic League have endorsed the antinarcotic legislation drafted by the joint legislative committee which is investigating the drug evil. The bill provides for free drug supply to addicts, and the registration of addicts so that they may be advised by the state, and of a thorough check on the distribution of narcotic drugs.

Brooklyn Physicians Demand Autonomy.—At the meeting of the Kings County Medical Society in Brooklyn, March 20, it was decided to begin a campaign to secure an independent health department for Brooklyn, and a resolution was adopted appointing a special committee of fifteen to be known as the charter revision committee, whose sole function is to bring about legislation at Albany by a campaign among the civic bodies of Brooklyn and the people generally, to the end that absolute borough autonomy in health matters of Brooklyn be obtained.

Military Training at Cornell.—In addition to military training offered by the Department of Military Science and Tactics of Cornell University, at Ithaca, the Medical Department of New York has commenced a course of lectures of "Military Medicine, Sanitation and Surgery," which are being given by Major Philip W. Huntington, M. C., U. S. Army. This course is available not only to the senior class in the medical college, but to all members of the Medical Reserve Corps in and about New York, as well as to physicians and nurses of the various Red Cross units.

Mackay Hospital Unit.—Clarence H. Mackay and his mother, Mrs. John W. Mackay, have made a joint gift of a completely equipped base hospital unit of 500 beds to the United States government through the American Red Cross. The organization of the unit has been accomplished by Roosevelt Hospital. Col. Jefferson K. Kean, M. C., U. S. Army, assisted in the organization. The staff of the unit, which will be called Red Cross Base Hospital, No. 18, will be directed by Dr. Charles A. H. Peck. Under the direction of Dr. Charles N. Dowd an alternate staff is being organized.

American Red Cross Work in New York.—The New York Chapter of the American Red Cross announces that in case war is declared it will have ready a complete hospital equipment for an army of 300,000 men. A fund of $215,000 for the equipment of seven military base hospitals organized in New York is completed. It is also stated that the Atlantic Division of the American Red Cross, of which New York is the center, has increased its membership in this part of the country by 150,000 since the break in diplomatic relations with Germany. The membership of this division now exceeds 310,000, more than one half of the entire Red Cross enrolment of the country.

OHIO

Health Insurance Commission Appointed.—The bill creating a commission to study the entire question of compulsory health insurance has passed both houses. It is expected that Governor Cox will sign it.

The Conklin Memorial.—The Montgomery County Medical Society has erected in the medical room of the Dayton Public Library a memorial tablet in honor of the services of Dr. William Judkins Conklin, formerly president of the library board.

Personal.—Dr. Chester C. Kirk, for thirteen years a member of the staff of the Toledo State Hospital, has resigned to accept the position of superintendent of the State Hospital for Nervous and Mental Diseases, Little Rock, Ark.——Dr. Charles E. Sawyer, Marion, has been reappointed a member of the state medical board.——Dr. Walter A. Haldy, Cleveland, has returned after three months' Red Cross service in Germany.

PENNSYLVANIA

Mellon Lecture.—May 18, Prof. Otto Folin, Ph.D., of Harvard University will deliver the third Mellon lecture of the Society for Biological Research of the University of Pittsburgh Medical School. The subject lecture will be "Recent Biologic Investigations on Blood and Urine; Their Bearing on Clinical and Experimental Medicine."

Medical War Survey.—At a meeting of physicians of Pittsburgh, in the academy of medicine rooms, March 13, steps were taken to classify the medical, surgical and hospital possibilities of Pittsburgh and Allegheny counties for war service. Dr. John J. Buchanan was elected president, Dr. Sidney A. Chalfant, secretary, and Dr. George C. Johnston, treasurer of the organization.

Personal.—Dr. Edward Ryan, Scranton, has returned after two years spent in medical relief work in Serbia.——Dr. John M. Gelwix, Chambersburg, has been appointed surgeon to the Columbia Valley Railroad.——Dr. Luba R. Goldsmith, Pittsburgh, was recently elected secretary to the Milk Commission of the Allegheny County Medical Society.——Dr. Gregg A. Dillinger, who has been ill in the West Pennsylvania Hospital as the result of a hemorrhage of the lungs, is reported to be improving rapidly.——Dr. D. Webster B. Kupp has located in Reading after more than thirty years of practice in Gibralter.——Dr. William N. Pringle, Johnstown, has returned after a trip to Central and South America.

Addition to Hospital.—April 3 was the "Public Inspection Day" of the New Nurses' Home Building, George W. Elkins' gift to the Abington Memorial Hospital, which has just been completed. The new structure represents an outlay of $150,000. It is similar in architecture to the rest of the hospital buildings, and in addition to giving model quarters to the nurses and hospital attachés, it permits, because of the large number of private rooms, a wider scope of work and activity for the hospital, the only institution in the Old York Road section. Mr. Elkins, the donor of the building, is also the founder and chief benefactor of the (Abington) Memorial Hospital, of which he assumed the cost of construction, and heavily endowed as a memorial to his wife, Stella McIntire Elkins.

Philadelphia

Doctors Plan Ambulance Corps.—Physicians in this city, members of the Physicians' Motor Club, have completed plans to form an ambulance squadron. One thousand machines will be enrolled, and each machine will be equipped with a rack holding two stretchers to be carried under the car during emergency periods. The plan has been approved by Mayor Smith, and permission has been granted the club to drill on the Belmont plateau.

War Training for Doctors.—At a meeting, March 29, of the medical council, composed of the faculty of the Medical School of the University of Pennsylvania, resolutions were passed urging that three months' service in a military training camp be made a requisite part of courses in medicine in all first class colleges to secure a diploma, and a mass meeting to boost preparedness and discuss military training was held by the students in the gymnasium, March 30.

Personal.—Dr. David N. Husik has been appointed laryngologist and otologist to the Philadelphia General Hospital in the place of Dr. Charles P. Grayson, resigned.——Dr. Frank C. Hammond has been elected president of the Samaritan Hospital Society, and Dr. Daniel J. Donnelly, secretary and treasurer of the same organization.——Dr. Judson Daland has been elected emeritus professor of clinical medicine in the Philadelphia Polyclinic and College for Graduates in Medicine.

Society Activities.—At the meeting of the College of Physicians of Philadelphia, April 4, a portrait of Dr. James Cor-

nelius Wilson was presented to the college on behalf of the donor, Mrs J. C. Wilson, by Dr. Francis W. Sinkler. The scientific discussion of the evening was devoted to "Gallbladder Disease."——The first of the series of Nathan Lewis Hatfield lectures will be delivered at the College of Physicians of Philadelphia, Twenty-Second Street above Chestnut, April 9, at 8:30 p. m., by Dr. Archibald B. McCallum, Toronto. His subject will be "Ancient Factors in the Relation Between the Blood Plasma and the Kidneys."——The Medical Club of Philadelphia will give a reception at the Bellevue Stratford, April 20, at 9 p. m., in honor of Dr. Chevalier Jackson, recently made professor of laryngology in Jefferson Medical College.

SOUTH CAROLINA

Personal.—Dr. Isaac J. Campbell has been elected mayor of Clover.——Dr. Hugh R. Black has been elected president of the board of health of Spartanburg, succeeding Dr. Julian H. Allen, deceased, and Dr. Oliver W. Leonard has been elected vice president.

Allen Memorial Association.—At a meeting of friends and admirers of the late Dr. Julian Howard Allen, at Spartanburg, recently, the Allen Memorial Association was organized, the purpose of which is to plan and execute some fitting memorial to Dr. Allen.

Antituberculosis Association Organized.—At a meeting held in Columbia, March 13, the South Carolina Antituberculosis Association was formally organized, and the following officers were elected: president, Prof. Reed Smith; honorable vice presidents, Drs. Robert Wilson, Jr., Charleston, and James A. Hayne, Columbia; vice presidents, Dr. Morgan P. Moorer, Georgetown, and Mrs. James Cosgrove, Charleston; secretary, Miss Martha A. Bonham, Anderson, and treasurer, J. R. Roseberry, Columbia.

CANADA

Doctors Heavily Fined.—Several physicians in London, Ont., have been fined $200 and costs on account of having prescribed liquor in contravention of the Ontario temperance act. One physician had written 718 orders for liquor since the act came in force, September 16.

Typhoid Fever Prevalent.—There are said to be about a dozen cases of typhoid fever in the Welland County Hospital and many more cases in the towns of Welland and Port Colborne. A general warning has been issued by the health officials advising residents of the county to boil all drinking water.

Hospital News.—The Brant House, a summer hotel at Burlington, Ont., near Hamilton, has been turned into a hospital for returned soldiers. It will accommodate about 300, and will make an ideal home with its sunny verandas and grounds facing the shore of Lake Ontario.——The recently completed immigration sheds at Quebec City are to be turned into a discharge depot under the Canadian Hospitals Commission. When the St. Lawrence navigation opens, ships can then come alongside the building and discharge passengers readily. It has accommodation for 1,000 beds.

Personal.—Dr. John S. Douglas, Dunnville, Ont., a recent graduate, has jointed the Canadian Army Medical Corps, and is now on his way overseas to assist in one of the military hospitals in France.——Col. F. W. Marlow, A. D. M. S., Toronto Military District, having handed in his resignation some weeks ago, has been advised that it has been accepted. His successor was not yet been appointed.——Col. John Taylor Fotheringham, C. M. G., Toronto, is returning to Canada, having been appointed director of invalid services. ——Lieut.-Col. Graham Chambers, Ontario Military Hospital, Orpington, England, is said to have suffered from a "nervous breakdown," and is now in a hospital in London.——Dr. Judson Daland, Philadelphia, read a paper before the Academy of Medicine, Toronto, April 3, on "Focal Infection as a Cause of Constitutional Diseases."——Dr. Joseph C. Beck, Chicago, will address a special meeting of the Oph-Oto-Laryngology Section of the Academy of Medicine, Toronto, April 23.——Dr. Alec Nicol Thomson, Brooklyn Hospital Dispensary, New York, led off the discussion on "The Dispensary Control of Venereal Diseases," Section of State Medicine, Academy of Medicine, Toronto, April 2.

GENERAL

Iowa and Illinois Physicians to Meet.—The regular spring meeting of the Iowa and Illinois Central District Medical Association will be held in Rock Island, Ill., April 12, under the presidency of Dr. David S. Fairchild, Clinton, Iowa. Dr. Arthur Dean Bevan, Chicago, will discuss "Some Interesting Problems in Abdominal Surgery."

Conferences on Tuberculosis.—The National Association for the Study and Prevention of Tuberculosis will hold its annual meeting in Cincinnati, May 9 to 11.——The Mississippi Valley Tuberculosis Conference will be held in the Twin Cities, October 8 to 20, the session of the first two days being held in Minneapolis and the last day in St. Paul.

The Carrel Method.—It is reported that a hospital for the instruction of surgeons in the treatment of infected wounds by the method worked out by Drs. Alexis Carrel and H. D. Dakin at the Military Hospital, Compeigne, France, will be established on the grounds of the Rockefeller Institute for Medical Research, New York. The Rockefeller Foundation has appropriated $200,000, which, it is expected, will be under the personal supervision of Dr. Carrel. The hospital will be organized as a military unit.

Correction.—In the article on "Enterostomy" by J. W. Long, THE JOURNAL, March 17, 1917, p. 833, it is stated:

"Occasionally, after the distended bowel is emptied, its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it as in a Witzel gastrostomy. This, however, is not often advisable, especially if the omentum cannot be utilized."

This should have read:

"Occasionally, after the distended bowel is emptied its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it similar to a Witzel gastrostomy. This, however, is not often advisable especially if the omentum can be made to surround the fistula. In some cases the omentum cannot be utilized."

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital and Pennsylvania Hospital, Philadelphia, each $5,000, by the will of Mrs. Phoebe N. Ashbridge.

St. Francis Home for Convalescents, Barby, Pa., $10,000, by the will of Michael Murphy.

New Jersey Orthopedic Hospital, Orange, N. J., a donation of $10,000 for the building fund, from Mr. J. Ogden Armour, Chicago.

Associated Jewish Hospitals of Chicago, $10,000; Michael Reese Hospital, Chicago, $5,000, and Chicago-Winfield Tuberculosis Sanatorium, $2,000, by the will of Julius W. Loewenthal.

Northwestern Antituberculosis League, $1,000, for permanent improvements at the Grand View Sanatorium, Oil City, Pa., by the will of Mrs. Joseph Seep, Titusville.

Committee of American Physicians for Medical Preparedness.—The Committee for Medical Preparedness, in a circular letter, announces that it is organizing subordinate committees in each county to cooperate with the national and state committees in gaining needed information regarding civilian medical resources and in securing applicants for the Army Medical Corps, the Medical Officers' Reserve Corps, the Naval Medical Corps, the Coast Defense Reserve Corps of the Navy and the National Guard, and that an inventory of hospitals and other medical institutions is being taken. The committee has also appointed a committee for the standardization of medical and surgical supplies and equipment, composed of representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and the medical profession.

Infectious Diseases.—As set forth in *Public Health Reports*, March 23, 1917, infectious diseases were reported as follows: Connecticut, February 1 to March 17, cerebrospinal meningitis, 61 cases; Minnesota, week ending March 17, cerebrospinal meningitis, 19 cases, with 4 deaths; since Dec. 26, 1916, a total of 52 cases, with 20 deaths; Massachusetts during February, cerebrospinal meningitis, 9 cases; West Virginia, 6 cases; Wisconsin, 5 cases. During February, leprosy was reported as follows: New Orleans Parish, La., 3 cases; Jersey City, N. J., 1 case; week ending March 3, New Orleans, 1 case; at Paauilo, Hawaii, March 17, plague, 1 fatal case. At Detroit from January 6 to March 17, there were reported 1,740 cases of scarlet fever; in Chicago between February 3 and March 17, there were 3,248 cases. During two weeks ending March 17 in Connecticut, 58 cases of smallpox were reported.

The American Review of Tuberculosis.—The first issue of a new monthly to be known by this title has just appeared. It is to be the journal of the National Association for the Study and Prevention of Tuberculosis. Its editor-in-chief is Dr. Edward R. Baldwin, Saranac Lake, N. Y., and the managing editor is Dr. Allen K. Krause of Baltimore. In view of the ever growing interest in tuberculosis work, the National Association considers that the present time is an excellent one to offer all workers in tuberculosis a medium in which they can present their work. The first number contains articles by Walter L. Rathbun on "The Classification of Pulmonary Tuberculosis"; by A. H. Garvin, H. W. Lyall

and M. Marita on "Chronic Nontuberculous Lung Infection"; by S. A. Petroff on "Serological Studies in Tuberculosis," and also a department of medical notes, abstracts and reviews.

To Increase Naval Medical Reserve Force.—In view of the present state of international affairs, an enlargement of the Medical Corps of the United States Navy has become necessary. The surgeon-general of the navy, therefore, has planned to fill these vacancies by enrolling in the Naval Reserve Force such senior students who volunteer for that service as may have received an average of 85 per cent. during their four year medical course. Deans of medical colleges have been requested to report such students as volunteers for this service, when a special medical officer will be sent to the college to examine them. To students who pass this examination the college officials have been requested immediately to grant certificates of graduation or statements showing that they have reasonable prospects of graduation. Students will then be assigned immediately to active service, for instruction and training, and will subsequently undergo another examination for appointment as assistant surgeons in the United States Navy. State licensing boards have been requested to approve of this advance graduation on the ground of national expediency, since it is believed the naval instruction and training will fully cover the deficiency in institutional instruction. At the request of the secretary of the navy, the Council on Medical Education has approved of this plan, and notified all Class A medical schools to that effect.

WAR NOTES

Hospital Unit for Palestine.—The Hadassah, the women's Zionistic organization, has raised a fund of $30,000 for the equipment of a medical unit of ten physicians and ten nurses to be sent to Palestine to combat typhus fever and other diseases now prevalent there.

Gifts of Ambulances.—Robert W. Goelet, New York, has made a gift of $250,000 to the Harjes-Norton Ambulance Corps, Paris.——The ambulance committee of the Evanston Red Cross Society has already raised $1,200 of the $1,600 required to purchase and equip an ambulance for the American Ambulance Corps in France, to be known as the Evanston Ambulance.

Hospital Ship Sunk.—It was announced, March 27, that the British hospital ship *Asturias* had been sunk without warning by a German submarine with a loss of thirty-one persons killed, twelve missing and thirty-nine injured. The *Asturias* is said to have been steaming with all navigation lights and with all the proper distinguishing Red Cross signs visibly illuminated.

Relief Work in Belgium.—The Commission for Relief in Belgium has been informed that another relief steamer has passed safely through the German blockade and arrived in Rotterdam. The work, which has heretofore been carried on by American delegates of the commission in Belgium, will for the time being be taken over by the Dutch authorities relief committees.

Philadelphia Physicians' Fund for Feeding Belgian Children.—It is estimated that of about 2,500,000 Belgian children there are at least 1,000,000 who are suffering from hunger. A committee has been organized in Philadelphia of which Drs. William W. Keen, Alonzo E. Taylor and George Woodward are the medical members, which proposes that for the six months from April 1, Philadelphia shall furnish one good noon-day meal every day to 100,000 of the children. The cost of this will be $1 per month per child, and the expenses of administration are provided for, so that the entire amount subscribed will go to the children.

FOREIGN

Infantile Paralysis in South America.—On account of the prevalence of infantile paralysis in South America, Chile has established special inspection stations at Arica, Puntas Arenas and in the Andean passes.

Nurses in Guam.—According to the *Survey*, March 24, 1917, seven native girls of Guam will this year receive diplomas from the United States Navy Medical Department as trained nurses. The girls are graduates of a mission school. The nursing course included ordinary nursing, obstetrics, sanitation, personal hygiene and dietetics. After graduation these nurses go into the country districts, and return later to the hospital for review and supervision. An increased staff of American surgeons and nurses to train these classes, in addition to the hospital work, has been provided.

PARIS LETTER

PARIS, March 1, 1917.

Personal

Jules Dejerine, clinical professor of diseases of the nervous system at the Faculty of Medicine of Paris, and physician to the Salpêtrière, died at the age of 67. He was born in Geneva, of French parentage, Aug. 3, 1849. After serving an internship in the Paris hospitals, he presented his doctorate thesis in 1879. It was entitled "Pathology of the Nervous System in Ascending Paralysis," indicating clearly a predilection for neurology. From that time on he devoted himself almost entirely to the study of the diseases of the nervous system and their pathologic anatomy. He was made chief of clinic in 1879, attending physician to the hospitals in 1882, and associate professor in 1886. In this capacity Dejerine had charge of an auxiliary course in pathologic anatomy as early as 1889. In 1893 he assisted Péter in his clinic at the Necker hospital. Afterward, in 1901, he was appointed to the chair of the history of medicine and surgery, which he abandoned soon afterward for the chair of internal pathology. Next he was appointed clinician in diseases of the nervous system, a position made vacant by the death of Raymond, the successor of Charcot.

Dejerine was a frequent contributor to the literature, and all of his writings represent progress in our knowledge of lesions of the peripheral and central nervous systems. It was he who advocated the examination of the spinal cord by means of serial sections, a marked and notable advancement in the study of the pathology of the spinal cord. In 1879, the Anatomical Society awarded him the Godard prize for his research on the lesions of the nervous system in diphtheritic paralysis, and in 1886 the Academy of Sciences awarded him the Montyon prize for work done in collaboration with Landouzy on the pathology of progressive muscular dystrophy, a disease which, for a long time, was known by the eponymic designation "Dejerine-Landouzy disease." Evidences of Dejerine's activity are found in the history of nearly all of the nervous diseases, notably aphasia, tabes, Friedreich's disease, myelitis, syringomyelia, neuritis, compression paralysis, Thomsen's disease, the thalamic syndrome, and inflammations of nerve roots. In collaboration with Mme. Dejerine (née Augusta Klumpke, a native of San Francisco, the first woman invested with the honorary title of intern of the hospitals of Paris), he prepared a really remarkable anatomy of the nervous centers, and collaborating with Dr. A. Thomas, he wrote a treatise on diseases of the spinal cord. He was also the author of the chapter on the semeiology of the nervous system in Bouchard's textbook on general pathology. Dejerine was a member of the Society of Biology, and in 1908 he was elected a member of the Academy of Medicine.

News has reached us of the death, at Lyons, of Jules Courmont, professor of hygiene at the Faculty of Medicine and Pharmacy of Lyons, and vice president of the Superior Council of Health of France. While making his professional rounds in the Hôtel-Dieu, he was suddenly stricken by cerebral hemorrhage, and in spite of the best of medical attention, he succumbed on the following morning. Courmont was chiefly known because of his work in tuberculosis. He had been a corresponding member of the National Academy of Medicine since 1909.

The War

RESUPPLYING THE MILITARY HOSPITALS

In conformity with vigorous regulations, every military hospital must hereafter secure its own supplies. The method of securing supplies appropriate to peace times becomes difficult of execution in time of war because of the greater number of sanitary formations. The exigencies of the moment necessitate more and more the creation of an agency for supply and distribution. On the basis of these orders, conveying the ideas and propositions of the ministers of finance and of war, supply depots will be created in the various regions of the territory. These depots are placed in charge of specialists recruited from among officers of administration and, so far as possible, from among the manufacturers and business men. To make it possible for these new organizations to defray their own operating expenses, it is proposed to issue a decree to increase the appropriations which may be given to the managers of these establishments.

AMBULANCES AND MILITARY HOSPITALS DONATED BY FRENCH VILLAGES FOR THE RUSSIAN FRONT

A national subscription has been opened among the cities and municipalities of France for the purpose of endowing the Russian armies with hospital corps, model hospitals and auto-

mobile ambulances, strictly in accord with military hygiene, medicine and surgery, as it has been developed by the war. These units will be organized under the auspices of the undersecretary of state of the military health service, and will be sent soon to Volhynia, to Bukovina, to the Caucasus and to Persia. Each unit will be accompanied by a competent surgeon and a chosen personnel so that our allies may take care of their wounded according to the best methods. The city of Paris, through its municipal council, has voted the sum of 50,000 francs ($10,000) for this purpose, and the little community of Seignosse in the Landes, with only 625 inhabitants, has appropriated 500 francs ($100).

MEDALS FOR ENGLISH WOMEN PHYSICIANS AND NURSES

A new decoration, known as the medal of the epidemics (médailles des épidémies), was recently conferred on forty English female physicians and nurses of auxiliary hospital No. 301 (abbaye de Royaumont). Miss Ivens, a graduate in medicine and chief of the hospital mentioned, received a gold medal. Eight gold plated silver medals were awarded to the Misses Ruth Nicholson, Augusta Berry, Agnes Savill, Marion Wilson, Elizabeth Courtauld, Winefred Ross, Cicely Hamilton and Kate London, all doctors of medicine, and fourteen silver and seventeen bronze medals were awarded to the nurses of the hospitals.

CONFERENCE FOR THE STUDY AND REEDUCATION OF WAR CRIPPLES

The meeting of the allied conference, organized for the study of the question of mutilation in all its aspects (reeducation, protection, disposition, etc.), which was to have taken place in Paris, March 6, 1917, has been postponed to May 8. All those desiring to take part in this conference are requested to write to the Belgian legation, rue de Berri, 20, Paris.

LONDON LETTER

London, March 12, 1917.

A New Standard for the Loaf

Under order for the manufacture of flour and bread (The Journal, Feb. 10, 1917, p. 474) the average compulsory extraction of flour was fixed at 76 per cent. if the miller added a further 5 per cent. of flour ground from rice, barley, maize or oats, or 81 per cent. if there was no addition of this admixture. An optional addition of a further 5 per cent. of flour ground from grain other than wheat was also permitted. A new order makes the extraction of 81 per cent. of flour from the wheat invariable, and admixture with some other substance is compulsory to the extent of an additional 5 per cent. The materials allowed to be mixed are rice, barley, maize, maize semolina, oats, rye or beans. Further admixture to the extent of an additional 10 per cent. is permitted. The order will mean a further and valuable diminution of the consumption of wheat, with a corresponding release of tonnage. It will be seen that if the miller chooses to exercise his option to the fullest extent, the total percentage of flour obtained may be as high as 96, as compared with 86 under the earlier order. Standard bread as now baked has been found to be both pleasant to eat and nutritious.

Administration of the Insurance Acts

An important report of a commission of investigation appointed by the Faculty of Insurance to consider the operation, position and prospects of national insurance has been issued. The chairman of the commission was Mr. John Hodge, now minister of labor, and the other members included one woman, one employer, six representatives of friendly societies, and the president of the Poor Law Union Association for England and Wales. The conclusions of the commission are thus summarized: (*a*) The medical benefit, the sickness benefit and the maternity benefit have undeniably been a great advantage to the community. The commission looks forward to their useful development in many ways. (*b*) The drug service is fairly good and represents, on the whole, reasonably good value for the money spent on it. Treatment as distinct from drugs should receive greater attention, and the system of medical aid societies and institutional treatment generally might with advantage be encouraged. (*c*) The tuberculosis scheme cannot be regarded as a success; in all probability much better results would be obtained were the existing system of overlapping control brought to an end and the whole responsibility vested in one public health authority. (*d*) It is impossible to expect fully satisfactory results from any of the health services unless and until housing conditions, both urban and rural, are improved. The report admits that so long as the war lasts no great changes in the relations between physicians, the public and the state are either desirable or practicable. The medical services under the act "represent a considerable advance on the conditions which obtained prior to the act." Of the defects in the various services, some are regarded as mainly due to administration, while some "appear to be inseparable from any form of medical service involving an enormous working-class population, many of whom spend their lives in an environment which, from a medical point of view, cannot possibly be described as favorable." It is suggested that a system under which a second medical opinion could be obtained when required would be an improvement, and the opinion is expressed that, though the services rendered are improving, "the standard of medical treatment is none too high, and unless a pretty rapid improvement is forthcoming within, say, the next five years, the practicability of establishing a state medical service will call for serious consideration." The view that the act presents a temptation to malingering is not accepted as commonly true. It is suggested that the act proceeds on the footing that the prescription of drugs is the foundation of medical attendance, whereas the future may impose an increasing reliance on treatment as opposed to drugs and "a fuller development of the hospital as a focal point in health administration"; but it is curious to find that in this connection the work of certain of the medical aid societies is especially praised. What is regarded as the worst fault of the drug service is that financial pressure and the great burden of clerical work placed on physicians not infrequently leads to the prescription of a comparatively cheap drug instead of a rather more suitable and more costly article. The results of the act as regards sanatorium benefit are looked on as disappointing. The problem was largely miscalculated, and the results fall far short of the expectations raised. Better access to early cases and isolation of late and infectious cases are regarded as essential. Most of the evidence was in favor of handing over the whole treatment of tuberculosis to the public health authorities. Unless housing conditions are substantially improved, which means a large expenditure, "it is impossible to expect really satisfactory results from any national health insurance scheme." The government has admitted that on about $150,000,000 of the funds of approved societies invested without reference to the views of their own office bearers there has been a depreciation of about $22,500,000. The amount of deficiency in the working of societies cannot be ascertained at present, but it is believed to be serious, and it is hinted that there has been improper concealment of the facts. The position must, it is believed, be still further aggravated when the effects of disablement benefit are more fully manifest. It is held that Parliament definitely made itself responsible for the act, and that insured persons are therefore entitled to look to Parliament for a remedy. The war threatens to cause a burden on approved societies, in respect to disabled soldiers and sailors, which their resources are not fitted to carry. The commission holds that "the state should provide all the money required to pay for the war; no portion of its cost should be thrown on insured persons as such through their approved societies." The state into which the finances of the act have fallen is attributed "very largely to the supposed requirement of the positions of political parties," and the hope is expressed that any suggested amendments will be looked on "as matter lying without the sphere of partisan conflict."

Marriages

Daniel Murrah Molloy, M.D., Managua, Nicaragua, C. A., to Miss Gladys Pierce Barker of Providence, R. I., March 15.

Lawrence Glen Dunlap, M.D., Bismarck, N. D., to Miss Clemence Ruby Lucken of Lidgerwood, N. D., March 4.

Frederick Valentine Gammage, M.D., Savannah, Ohio, to Miss Leah Iris Coulson of Ashland, Ohio, February 24.

Davison Hughes Ray, M.D., Bingham Canyon, Utah, to Miss Elizabeth Eastin Kinkaid of Louisville, March 1.

Howard William Girvin, M.D., Warrensville, Ohio, to Miss Elsie B. Jones of Baltimore, in Cleveland, March 22.

Balduin Hermann Lucke, M.D., Philadelphia, to Marion Hague Rea, M.D., of Boston, March 2.

Allen Greenwood, M.D., Wellesley, Mass., to Miss Hope H. Whipple of Pawtucket, R. I., March 8.

Deaths

Charles Shreve Braddock, Jr., M.D., Haddonfield, N. J.; Jefferson Medical College, 1896; aged 53; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New Jersey; for several years a surgeon of the New Jersey Naval Reserve, and during the Spanish-American War a lieutenant on the *U. S. S. Resolute;* from 1902 to 1910 assistant to Dr. H. Adamson, a medical missionary of the Baptist Board and chief of the Royal Hospital, Bangkok; afterward chief health officer of the Siamese government, who for his work in plague and cholera received the decoration of the Crown of Siam from the king of Siam; after his return to America medical examiner for the Interborough Rapid Transit Company of New York; died at his home, March 23, from cerebral hemorrhage.

Harry Mead, M.D., Buffalo; University of Buffalo, N. Y., 1891; aged 48; a Fellow of the American Medical Association; associate in medicine in his alma mater; a member of the medical staff of the Buffalo General Hospital; assistant surgeon of the Sixty-Fifth New York Infantry, U. S. V., during the war with Spain; died at his home, March 18, from heart disease. At a special meeting of the administrative board of the Medical Department of the University of Buffalo, a committee was appointed to draw up resolutions on the death of Dr. Mead, and it was further decided that the faculty attend the funeral in a body and that as a mark of respect to Dr. Mead, the medical department be closed on the afternoon of the funeral.

Reuben Fletcher Monette, M.D., Greensboro, Ala.; New York University, New York City, 1892; aged 46; assistant physician in the New York City Asylum for the Insane and the Manhattan State Hospital, Ward's Island, N. Y., from 1893 to 1902; a member of the Medical Association of the State of Alabama and American Medico-Psychological Association; while on a fishing trip in the Warrior Swamp near Greensboro, March 15, died suddenly from acute gastritis.

George E. McDonald, M.D., Schenectady, N. Y.; New York University, New York, 1862; aged 75; a member of the Medical Society of the State of New York; assistant surgeon and surgeon of the Twelfth New York Volunteer Cavalry during the Civil War; one of the founders of the Physicians' Hospital which later become Mercy Hospital, Schenectady; a member of the staff of Ellis Hospital, Schenectady; died at his home, March 8.

E. R. Max Magnus von Schmittholz, M.D., San Francisco; Jefferson Medical College, 1888; aged 63; a Fellow of the American Medical Association; who had conferred on him the order of the Red Eagles by Kaiser Wilhelm in 1913 for his services to his fatherland in western America; a leader of German musical development in San Francisco; died in the Lane Hospital, San Francisco, March 19, from myocarditis.

John George Johnson, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1857; aged 83; formerly a Fellow of the American Medical Association; surgeon of volunteers during the Civil War; at one time editor of the *New York Medical Journal;* a member of the staff of Bellevue and Long Island College hospitals; died at his home, March 25, from senile debility.

Charles J. Keim, M.D., Catasauqua, Pa.; University of Pennsylvania, Philadelphia, 1875; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of Pennsylvania; a veteran of the Civil War; for two terms burgess of Catasauqua and for several years a school director and member of the town council; died at his home, March 18.

Arthur Ellsworth Merrill, M.D., Somerville, Mass.; Long Island College Hospital, Brooklyn, 1886; aged 54; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; for many years medical director of the Somerville Y. M. C. A.; died suddenly at that place, March 17, from heart disease, while playing basket ball.

Andrew Robertson Gordon, M.D., Toronto, Ont.; University of Toronto, 1890; aged 53; associate professor of clinical medicine in his alma mater; lieutenant-colonel, C. A. M. C.; with overseas service with No. 4, Toronto University General Hospital, but invalided home in 1915; died at his home in Toronto, Dec. 16, 1916, from carcinoma of the stomach.

Thomas Bernard Shea, M.D., Boston; Harvard Medical School, 1887; aged 54; a Fellow of the American Medical Association; assistant fort physician, medical inspector, chief medical inspector and later deputy commissioner of health of Boston; for thirty years connected with the health department of that city; died at his home, March 25.

Frank Webster Evans, M.D., Bellingham, Wash.; Dartmouth Medical School, Hanover, N. H., 1898; aged 48; formerly of Coos, N. H.; a member of the New Hampshire Medical Society and formerly secretary of the Coos County Medical Society, and a member of the board of health of Coos; died at his home, March 19, from erysipelas.

George Garrett Gordon, M.D., Detroit; University of Michigan, Ann Arbor, 1878; aged 64; professor of anatomy in the Michigan College of Medicine and Surgery; formerly a Fellow of the American Medical Association; died at his home, March 12, from the effects of injuries sustained in an automobile accident a year before.

John A. DeArmand, M.D., Davenport, Iowa; University of Pennsylvania, Philadelphia, 1876; aged 65; formerly a member of the Iowa State Medical Association; for several years county physician of Scott County; alderman for four years and for two terms state senator; died at his home, March 23, from arteriosclerosis.

Joseph Reed Osman, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1884; Medical-Chirurgical College of Philadelphia, 1884; aged 70; a Fellow of the American Medical Association; a veteran of the Civil War; assistant in bacteriology in his alma mater; died at his home, March 17.

Jonas Adelson, M.D., New York; College of Physicians and Surgeons in the City of New York, 1901; aged 40; formerly a Fellow of the American Medical Association; attending physician to New York University and Bellevue Hospital Dispensary; died at his home in Lynbrook, L. I., March 20.

Alexander Ferguson Koonts, M.D., Irvington, N. Y.; Bellevue Hospital Medical College, 1883; a specialist on diseases of the eye, nose and throat; since 1896 assistant surgeon to Manhattan Eye, Ear and Throat Hospital; died in the Rockefeller Institute Hospital, March 5, from pneumonia.

John Henry Clay Cuffman, M.D., Gurdon, Ark.; University of Nashville, Tenn., 1889; aged 53; a Fellow of the American Medical Association; local surgeon of the Missouri Pacific System; president of the Clark County Bank; died in St. Luke's Hospital, Little Rock, Ark., March 18.

Alexander M. Cowie, M.D., Kingman, Ariz.; McGill University, Montreal, 1887; aged 52; a Fellow of the American Medical Association; for several years surgeon for the Occidental and Oriental Steampship Company; died at his home, March 18, from appendicitis.

James Cash Coleman, M.D., Goshen, N. Y.; Albany (N. Y.) Medical College, 1863; aged 73; assessor of taxes since 1895; for eighteen years a member of the board of education; a veteran of the Civil War; died at his home, February 26, from cerebral hemorrhage.

James Aloysius McMorrow, M.D., Syracuse, N. Y.; Bellevue Hospital Medical College, 1898; aged 40; formerly a member of the Medical Society of the State of New York; died in the French Hospital, New York, March 12, five days after an operation for appendicitis.

John T. Allen, M.D., St. Louis; Missouri Medical College, St. Louis, 1895; also a pharmacist; died in the St. Louis City Hospital, February 13, from injuries received in jumping from a four-story window of a hotel while delirious and suffering from lobar pneumonia.

George Washington Boskowitz, M.D., New York; Eclectic Medical College of the City of New York, 1876; aged 60; dean and professor of surgery and therapeutics in his alma mater since 1884; editor of the *Eclectic Review* since 1890; died in Sarasota, Fla., March 15.

Herbert A. Sherwood, M.D., Warren, Ohio; Homeopathic Hospital College, Cleveland, 1876; aged 62; formerly a Fellow of the American Medical Association and president of the staff of the Warren City Hospital; died in the Cuyahoga Sanitarium, March 10.

Gordon T. Simonson, M.D., Crisfield, Md.; University of Maryland, Baltimore, 1896; aged 44; a member of the Medical and Chirurgical Faculty of Maryland; who fractured his leg at the ankle about a month before; died at his home, March 10, from heart disease.

Charley Graves Coyle, M.D., Spring Hill, La.; Marion-Sims College of Medicine, St. Louis, 1901; aged 41; a member of the Louisiana State Medical Association; also a druggist; was instantly killed by the overturning of his automobile near Sarepta, La., March 15.

Claudius Barrard Chapin, M.D., Benton Harbor, Mich.; University of Michigan, Ann Arbor, 1897; aged 44; formerly

a member of the Michigan State Medical Society, and once president of the Berrien County Medical Society; died in Chicago, March 9.

Moses O. Moore, M.D., Spiro, Okla.; **Memphis Hospital** Medical College, Memphis, Tenn., 1907; aged 38; formerly a Fellow of the American Medical Association; was instantly killed by the overturning of his automobile near Poteau, Okla., March 6.

Richard Henry Endicott, M.D., Oakdale, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 71; formerly a member of the Medical Society of the State of California; died at his home, March 15, from carcinoma of the stomach.

J. Q. Stovall, M.D., Grayson, Ky.; Louisville (Ky.) Medical College, 1885; aged 79; formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association; died at his home, February 6, from cirrhosis of the liver.

Charles D. Goodrich, M.D., Elkhart, Ind.; University of Michigan, Ann Arbor, 1879; aged 60; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home, March 14, from pneumonia.

George Mifflin Dallas Peltz, M.D., Center Square, N. J.; University of Pennsylvania; Philadelphia, 1868; aged 71; for many years a practitioner of Philadelphia and treasurer of the Philadelphia Medico-Legal Society; died at his home, March 11.

Soloman E. Hampton, M.D., Milton, Ky.; Miami Medical College, Cincinnati, 1866; aged 79; formerly a member of the Kentucky State Medical Association; a veteran of the Civil War; died at his home in Hunters Bottom, near Milton, from nephritis.

Frank D. Schwerdtfeger, M.D., Royal, Iowa; Northwestern University Medical School, Chicago, 1911; aged 28; formerly a member of the Iowa State Medical Society; died in a hospital in Chicago, about March 9, after a surgical operation.

David Moury, M.D., Bellefontaine, Ohio, and Atlanta, Ga.; Vanderbilt University, Nashville, Tenn., 1884; aged 79; a Fellow of the American Medical Association; died at his winter home in East Lake, Atlanta, March 10, from pneumonia.

Frederick Rice, M.D., Sunbury, Pa.; University of Pennsylvania, Philadelphia, 1900; aged 40; a member of the Medical Society of the State of Pennsylvania; was run down and killed by a street car in Sunbury, March 10.

Thomas B. Duckett, M.D., Fountain Inn, S. C.; Atlanta (Ga.) Medical College, 1886; aged 54; formerly a member of the South Carolina Medical Association; died at his home, February 26, from cerebral hemorrhage.

Emmet Newton Palmer, M.D., Brooklyn, Mich.; University of Michigan, Ann Arbor, 1869; aged 76; a Fellow of the American Medical Association; died at his home, February 28, from nephritis.

Anne Taylor Wass, M.D., Los Angeles; Northwestern University Women's Medical School, Chicago, 1882; aged 66; died in the Women's Hospital, Chicago, January 18, from malignant disease.

Francis M. Abbett, M.D., Indianapolis; Eclectic Medical Institute, Cincinnati, 1870; aged 76; died in the Methodist Hospital, Indianapolis, Dec. 27, 1916, from uremia.

George Wever, M.D., Anacortes, Wash.; Detroit Medical College, 1878; aged 78; a veteran of the Civil War; died at his home, February 8, from cerebral hemorrhage.

Alexander J. Stark, M.D., Sarcoxie, Mo.; Missouri Medical College, St. Louis, 1887; aged 53; died at his home, March 8, from cerebral hemorrhage.

Walter H. Curtis, M.D., Rochester, N. Y.; Hahnemann Medical College, Philadelphia, 1880; aged 56; died at his home, February 24.

Frederick E. Davis, M.D., Birmingham, Ala.; Birmingham (Ala.) Medical College, 1899; died in an infirmary in Birmingham, March 6.

William Lee Roy Leister, M.D., Oakland City, Ind.; Eclectic Medical Institute, Cincinnati, 1884; aged 67; died at his home, March 4.

Albert Walter Sully, M.D., New York; Bellevue Hospital Medical College, 1891; aged 49; died at his home, March 14.

D. W. Moorehead, Oklahoma City (license, Oklahoma, 1908); died at his home, about March 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CORPORA LUTEA (SOLUBLE EXTRACT), PARKE, DAVIS & CO.

Report of the Council on Pharmacy and Chemistry

Following inquiries, the Council took up for consideration "Corpora Lutea (Soluble Extract)," marketed by Parke, Davis & Co. in the form of ampules and proposed for hypodermic administration. The report which appears below was submitted to the Council by a committee, and was adopted by the Council. Corpora Lutea (Soluble Extract) was declared inadmissible to New and Nonofficial Remedies, and publication of the report authorized.

W. A. PUCKNER, Secretary.

Corpora Lutea (Soluble Extract) has not been submitted by the manufacturer. The information of the referee is based, therefore, on the claims made in the trade package, and on the statements in the price list. These show that the product is essentially secret and claims made for the actions and uses of the preparation do not make clear the essentially experimental status of the article, and are therefore misleading.

Conflict with Rule 1.—No definite statement of composition appears beyond the indefinite claim that it is an aqueous solution of "soluble Corpora Lutea Extract," each ampule corresponding to 0.2 Gm. of desiccated gland. How these soluble products are obtained, whether they represent *all* the water-soluble principles, or whether some have been eliminated, are questions that are not answered. Yet such information is essential to intelligent and scientific use, for, as there is no method of standardization, the method of preparation is the only mark of identity. For instance, we do not know at this time whether proteins have anything to do with the supposed value of corpora lutea. It is, therefore, essential to know whether or not the proteins have been eliminated.

Conflict with Rule 6.—The circular in the package advises the hypodermic use of this extract, not only in functional amenorrhea and the ordinary reflex consequences of physiologic or artificial menopause, but also in:

> "'neurasthenic' symptoms during menstrual life";
> "sterility, not due to pyogenic infection or mechanical obstruction";
> "repeated abortions, not due to disease or mechanical factors";
> "hyperemesis in the early months of pregnancy."

These are not stated merely as conditions in which various enthusiasts have tried corpus luteum, but as conditions "for which it will be found serviceable."

It is not necessary to inform the medical profession that this statement is calculated to raise expectations which cannot possibly be fulfilled. Even the manufacturers seem to realize this; at least they speak somewhat indefinitely of "suitable cases," "good judgment," "real indications," etc. But they proceed to nullify this warning—if it was intended as a warning—by their illustrations of unsuitable cases, for instance, "amenorrhea due to extreme anemia, dysmenorrhea due to cervical stenosis," etc. Finally, they sum up the case:

> "Therefore, additional emphasis on the necessity for the proper selection of cases is essential in order that this useful preparation may not be unjustly discredited."

How these cases of sterility, abortions, etc., are to be selected is not revealed. In other words, the restriction is no more than a convenient device by which every improvement is to be attributed to the medicine, and every failure to the physician.

The referee recommends that Corpora Lutea (Soluble Extract), Parke, Davis & Co., be held ineligible to N. N. R., because it is a secret preparation advertised under extravagant claims.

[EDITORIAL COMMENT.—Was it not in Weir Mitchell's "Adventures of François" that the itinerant promised to pull teeth without any pain, *if the patient would hold absolutely still?* And, *mirabile dictu*, the ones who suffered were those who had not held absolutely still!]

Correspondence

"The 'Open Door' in China"

To the Editor:—I have just read the editorial "The 'Open Door' in China." The bulletin on which it is based was commented on at length in the official organ of the Rochester Chamber of Commerce this week. I think every physician and everybody else who can see the cruelty and economic loss caused by the "patent medicine" business ought to begin to write letters to the secretary of the department which is responsible for putting out that bulletin. I do not remember who the secretary of commerce is; but enough letters of protest ought to be sent to him to make him take notice.

JOHN M. SWAN, M.D., Rochester, N. Y.

[EDITORIAL NOTE.—The secretary of the Department of Commerce is William C. Redfield. The chief of the Bureau of Foreign and Domestic Commerce, through which "Special Consular Report No. 76" on "Proprietary Medicine and Ointment Trade in China" was sent out, is E. E. Pratt.]

Syphilis as an Etiologic Factor in Mongolian Idiocy

To the Editor:—I have been much interested in the article by Drs. McClelland and Ruh on this subject (THE JOURNAL, March 10, 1917, p. 777). I have been studying it for ten years and have discussed it in "Feeble-Mindedness, Its Causes and Consequences." I have not been able to find any conclusive proof that syphilis in the parents causes feeblemindedness of any type, to say nothing of the Mongolian. I was consequently much surprised at Dr. Stevens' article, which is answered by the article in question.

The results of Drs. McClelland and Ruh are thoroughly consistent with other studies of Wassermann tests of the feebleminded. We have made two series of examinations in this institution, in one of which five antigens were used and both blood and spinal fluid employed. In neither of these was the percentage of positives noticeably high. Many other institutions have made similar tests of their patients, and while the percentage of positives varies, it is nowhere surprisingly large. The following from the Columbus Institution, Ohio, is fairly typical:

Among those tested were twenty-eight Mongolians, of whom five, or 17.8 per cent., gave positive reactions. In the Keller Institution in Denmark, tests were made a few years ago and gave, for the total group of feebleminded, only 2 per cent. positive Wassermann reactions and for the Mongolians, none.

Our experience in the matter of parental history also confirms that of the authors. We have the confidence of the parents of our children to a very high degree. The fact that we are making scientific studies of the problem, and are working to help their child, elicits the parents' interest and breaks down all barriers. Moreover, it is a characteristic of Mongolian imbecility that the type comes from the best families; the parents are intelligent and highly respected people. While unfortunately this does not necessarily preclude the presence of syphilis, it does make it highly probable that they would know it if they had ever been infected, even innocently. We have not found a single case in which the parents admitted syphilis or their physical condition would indicate it.

We can also corroborate the authors' second statement in regard to the histories of brothers and sisters of Mongolians. From other institutions for the feebleminded I have collected the histories of 332 cases of Mongolian imbecility. In not one instance was there history of another Mongolian child in the family, and in only two cases were there histories of other mental defectives of *any type*. As the authors claim, this seems a highly improbable result, if syphilis were the cause of Mongolian imbecility.

To these difficulties in the way of regarding syphilis as the cause of Mongolian imbecility, I think may be properly added the further one that there is no correlation between the incidence of mongolism and syphilis. Mongolian imbecility is, relatively speaking, very rare; syphilis is far from rare. If syphilis is the cause of Mongolian imbecility, are we not compelled to conclude that the latter would be vastly more prevalent than it is?

HENRY H. GODDARD, Vineland, N. J.
Director, Department of Research, the Training School.

Current Views Regarding the Tonsils and Their Surgical Removal

To the Editor:—As a practitioner of western Kansas and inferentially included in the list of those endorsing his methods, I cannot let the statements made in THE JOURNAL, March 24, 1917, by Dr. Higginbotham of Hutchinson go unchallenged. We are willing to concede that pyorrhea alveolaris is probably the direct cause of cataract, scabies, hemorrhoids, etc., as Dr. Higginbotham valiantly maintains. We will also grant that focal infections of tonsils, teeth, etc., may produce warts, moles and clubfeet. But when Dr. Higginbotham publishes through THE JOURNAL (and the space should be more valuable) that we enucleate tonsils for diphtheria in lieu of antitoxin and other accepted treatment, we must in justice to the profession of this district rise up and swat the libel. No argument is necessary to prove that diphtheria is rarely limited to the tonsil. His other contentions are equally untenable.

J. A. DILLON, M.D., D.D.S., Larned, Kan.

[COMMENT.—Dr. Higginbotham's letter was printed to show how extreme one may become in one's enthusiasm in advocating a pet theory or measure. Furthermore, overenthusiasm in advocating a cause sometimes produces a healthy reaction. —ED.]

Yellow Petrolatum

To the Editor:—With regard to my letter on yellow petrolatum in intestinal stasis (THE JOURNAL, Jan. 27, 1917, p. 304), I have received inquiries as to the meaning of "yellow petrolatum." The only brand with which I have had experience is "vaseline" sold by the Chesebrough Company. There may be others as good or better, but I have not found them in Omaha. As previously indicated, I think the yellow petrolatum is more efficient than the white.

H. GIFFORD, M.D., Omaha.

[COMMENT.—The petrolatum of the United States Pharmacopeia is also known as petroleum ointment, petroleum jelly and vaseline. Vaseline is the Chesebrough Company's trade name for this product. Petrolatum album of the United States Pharmacopeia is the decolorized product. There is no "yellow petrolatum," although the term is sometimes applied to the official "Petrolatum" to distinguish it from the official "Petrolatum Album."—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"CYANOCUPROL"—"AMBRINE"

To the Editor:—1. Kindly state in your next week's issue, if possible, whether "Cyanocuprol" is being used in any sanatoriums or hospitals of this country as a curative agent for tuberculosis, and what the results of scientific investigations of this drug are.

2. What is "Ambrine?" Over $500 has been raised in Dallas for the purchase of this preparation. EMIL ARONSON, M.D., Dallas, TEXAS.

ANSWER.—1. Studies of the effects of "Cyanocuprol" on tuberculous processes, carried out by Japanese investigators, were discussed in THE JOURNAL, Aug. 5, 1916, p. 443. At that time attention was called to the fact that the preparation "Cyanocuprol" used by the Japanese investigators is stated to be a copper cyanid preparation, the exact composition of which was being kept secret. The use of "Cyanocuprol," even should its identity become known, is decidedly in the experimental stage.

2. "Ambrine" is a French secret preparation that has been on the market for many years. It has recently come into prominence through sensational articles in the lay press, both in this country and abroad. For all practical purposes it is solid paraffin to which some material has been added to make it adhesive and more plastic. A similar preparation may be made by melting together paraffin, 96 per cent., and beeswax, 4 per cent. For use it is heated until liquid and applied to burns and open wounds. It forms a relatively impervious dressing. See article by Dr. Torald Sollmann, this issue, page 1037.

LITERATURE ON DOUBLE URETERS

To the Editor:—Please give some references to literature on "double ureters" and "double pelves" of the kidney.

BUNDY ALLEN, M.D., Iowa City, Iowa.

ANSWER.—

Stevens, A. R.: Pathologic Lesions of the Kidney Associated with Double Ureters, THE JOURNAL, Dec. 28, 1912, p. 2298.

Hartmann, J.: Supernumerary Ureters, *Ztschr. f. Urol.*, July, 1913; abstr., THE JOURNAL, July 19, 1913, p. 233.

Motzfeldt, K.: Deformity of Urinary Apparatus, *Norsk Mag. f. Lægevidensk.*, July, 1914; abstr., THE JOURNAL, Aug. 22, 1914, p. 714.

Worrall, R.: Case of Bilateral Duplication of Ureters Complicating Operation for Cancer of Cervix Uteri, *Jour. Obst. and Gynec. Brit. Emp.*, September, 1914.

Lockyer, C.: Double Ureter Simulating Parovarian Cyst in Right Broad Ligament, *Jour. Obst. and Gynec. Brit. Emp.*, October-December, 1914.

Cecil, A. B.: Case of Complete Duplication of Renal Pelvis and Ureter, *California Jour. Med.*, January, 1915.

Simon and Mertz: Complete Unilateral Duplication of Ureter, THE JOURNAL, May 27, 1916, p. 1686.

Peacock: Multiple Ureters with Hydronephrosis, THE JOURNAL, April 18, 1916, p. 1088.

QUARANTINE FOR MEASLES AND RUBELLA

To the Editor:—1. What is the generally accepted idea regarding the quarantine period for measles?

2. Is it considered safe to remove restrictions after respiratory symptoms have entirely subsided, paying no attention to desquamation?

3. What is considered a safe period of quarantine for German measles?

Please omit my name in answering. E. V. V.

ANSWER.—1. The period of quarantine for measles is generally given as four weeks.

2. In New York City at present quarantine is terminated five days after the appearance of the rash, provided all catarrhal symptoms have ceased and fever and rash have disappeared, although not the pigmentation. Meara suggests that the child should be kept in bed until the rash has quite disappeared, and then, in the absence of fever and complications, may be allowed up, and in another week or ten days the quarantine may be lifted. Rosenau ("Preventive Medicine and Hygiene") states that the quarantine should not be raised until all the manifestations of the disease have disappeared. The period of quarantine for infectious diseases is a matter dependent largely on local laws and ordinances, and varies of course in different places.

3. Most physicians believe that isolation is not necessary in rubella.

THYROID EXTRACT IN UTERINE HEMORRHAGE

To the Editor:—I am preparing a paper on the use of thyroid extract in the treatment of uterine hemorrhages, and would appreciate a list of references to articles on this subject which have appeared in THE JOURNAL. I have my journals for some time, but by having the exact number of the journals in which these articles have appeared, I could find the articles more easily, which would greatly facilitate the preparation of said paper.

O. C. KLASS, M.D., Muskogee, Okla.

ANSWER.—

Selirt, E.: Thyroid Origin of Hemorrhagic Uterine Disease, *München. med. Wchnschr.*, May 6, 1913; abstr., THE JOURNAL, June 14, 1913, p. 1930; Thyroid Treatment of Uterine Hemorrhage, *München. med. Wchnschr.*, Feb. 10, 1914; THE JOURNAL, March 21, 1914, p. 974.

Salzman, S.: Hyperthyroidism Factor in Certain Types of Uterine Hemorrhage, *Am. Jour. Obst.*, November, 1916, p. 812; abstr., THE JOURNAL, Dec. 2, 1916, p. 1696.

HOLMES ON PUERPERAL SEPSIS

To the Editor:—Please give me the date of the first publication of Oliver Wendell Holmes' essay on "Puerperal Sepsis."

KENNETH E. KELLOGG, M.D., New Britain, Conn.

ANSWER.—"The Contagiousness of Puerperal Fever" by Oliver Wendell Holmes was first published in the *New England Quarterly Journal of Medicine and Surgery*, 1842.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.
ARKANSAS, ECLEC.: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.
ARKANSAS, HOMEOPATHIC: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.
CALIFORNIA: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.
DISTRICT OF COLUMBIA: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
HAWAII: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.
ILLINOIS: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.
NEVADA: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.
NEW MEXICO: Santa Fé, April 9. Sec., W. E. Kaser, East Las Vegas.
OKLAHOMA: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 2-3, 1917. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, of whom 4 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1915)	* 85
Indiana University	(1908)	80.3
Maryland Medical College	(1905)	75.8
Jefferson Medical College	(1916)	82.4
FAILED		
California Eclectic Medical College	(1912)	*

* No grade given.

Florida December Report

Dr. E. W. Warren, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Palatka, Dec. 5-6, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 26, of whom 18 passed and 8 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Med. Coll. of Alabama	(1904)	85
Atlanta Medical College	(1915)	84
State University of Iowa	(1896)	66 *
Tulane University of Louisiana	(1914) 89; (1915)	78
College of Physicians and Surgeons, Baltimore	(1906)	80
University of Maryland	(1916)	84
Dartmouth Medical School	(1879)	88
University and Bellevue Hospital Medical College	(1912)	88
University of the City of New York	(1891)	81
Meharry Medical College	(1916) 75, 75,	86
Memphis Hospital Medical College	(1887)	56 *
Vanderbilt University	(1916)	77
University of Havana	(1915)	75
National University, Athens	(1913)	80
University of Naples	(1898)	75
FAILED		
Atlanta College of Physicians and Surgeons	(1912)	72
Southern College of Medicine and Surgery	(1914)	45
University Medical College of Kansas City	(1901)	67
Meharry Medical College	(1914) 43;	66
University of the South	(1907)	64
Vanderbilt University	(1892)	48
University College of Medicine	(1907)	68

* Credit allowed for years of practice.

Kentucky December Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 11-13, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 12, of whom 5 passed and 7 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Loyola University	(1916) 80.4,	86
University of Louisville	(1910) 84; (1916)	77, 80

FAILED		
Bennett Medical College	(1913)	65
Loyola University	(1916)	71 *
Kentucky School of Medicine	(1908)	56
Louisville Medical College	(1907)†	44
Louisville National Medical College	(1912)	60
Meharry Medical College	(1915) 67; (1916)	70 *

* Fell below 60 per cent. in certain branches.
† Graduation not verified.

New Hampshire December Report

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the oral and written examination held at Concord, Dec. 18-19, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed and 3 osteopaths failed. One candidate was granted a reregistration license by examination and 4 candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland		(1916)	88
Boston University		(1915)	85
Harvard University		(1916)	84
Tufts Medical College		(1916)	77, 90

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Boston University		(1895)	Mass.
Harvard University		(1915)	Mass.
Tufts Medical College		(1915)	Mass.
University of Vermont		(1887)	Vermont

Ohio December Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, Dec. 5-7, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 25, of whom 23 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1913)	84.9
Chicago College of Medicine and Surgery		(1915)	77
Rush Medical College		(1901)	78.7
University of Illinois		(1916)	82.3
University of Louisville		(1915)	79.4
Johns Hopkins University		(1912)	84.6
University of Maryland		(1916)	78.9, 81.2, 82.2
Harvard University		(1916)	80.1
University of Michigan Medical School		(1916)	80.2
Albany Medical College		(1916)	82
Eclectic Medical College		(1916)	75.3, 81.1
Western Reserve University		(1916)	78.8, 79.3, 86.7, 88
Jefferson Medical College of Philadelphia		(1914) 86.1; (1916)	83
Woman's Medical College of Pennsylvania		(1915)	86
Medical College of Virginia		(1916)	86.3
National University, Athens		(1909)	75
	FAILED		
Meharry Medical College		(1905)	60.2
University of Genoa, Italy		(1912)	68.7

Virginia December Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 12-15, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 24, of whom 17 passed, including 3 nongraduates and 1 osteopath, and 7 failed, including 2 osteopaths. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Georgia		(1913)	76
National Medical College		(1906)	80*
University of Maryland		(1916)	87
Medical College of Virginia (1915) 77, 80; (1916) 75, 79, 79, 82, 91.			
University of Virginia		(1910) 95; (1916) 94, 94	
*	FAILED		
North Carolina Medical College		(1915)	67
Meharry Medical College		(1915)	74
University of West Tennessee		(1916)	73
Medical College of Virginia		(1912) 71; (1916)	66

*Graduation not verified.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1909)	Dist. Colum.
Atlanta College of Physicians and Surgeons		(1912)	Georgia
University of Louisville		(1910)	Kentucky
Tulane University of Louisiana		(1900)	Louisiana
Baltimore Medical College		(1913)	Alabama
University of Maryland	(1888) North Carolina;	(1914)	W. Virginia
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1909)	Penna.
Woman's Medical College of Pennsylvania		(1914)	Penna.
Meharry Medical College		(1904)	Illinois
Medical College of Virginia		(1913)	N. Carolina

Book Notices

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. With chapters upon Sewage and Garbage, by George C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by John W. Trask, Assistant Surgeon-General U. S. Public Health Service; Mental Hygiene, by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene. Second Edition. Cloth. Price, $6. Pp. 1286, with 172 illustrations. New York: D. Appleton & Co., 1916.

That the advance of preventive medicine and hygiene has been exceptionally rapid during the past few years is shown in this new edition of Rosenau's book. The additions include, as stated in the preface, prevalence of venereal diseases, chancroid, the Schick reaction, the Bang method of suppressing bovine tuberculosis, organization of a local tuberculosis campaign, tuberculosis sanatoriums and dispensaries, emetin, insecticidal agents, especially for lice and fleas, standardization of bacterial vaccines, sensitized vaccines, roaches, feeblemindedness, the Wassermann test, relation between host and parasite, essential requirements for a safe milk supply, butter, desiccated and condensed milk, streptococci of sore throat, sodium fluorid, hydrofluoric acid, cancer heredity, tests for heated milk, echinococcus disease, carbon dioxid in alveolar air, sanitary significance of odors, ocular hygiene, hydrogen sulphid, methane, accidents in sewers and their prevention, reinspiration of expired air, air washing with reference to ventilation, goiter, sanitation of swimming pools, and military hygiene.

It is interesting to note that in the chapter on venereal diseases Dr. Rosenau favors attempts at registration of these diseases, although he is rather pessimistic as to the success of the registration. He is hopeful, however, that as time goes on a gradual improvement may be expected, although he is rather hopeless as to the possibility of ever eradicating venereal diseases. Incidentally he says (page 55):

"Syphilis is an infection caused by the *Treponema pallidum* (formerly known as the *Spirochaeta pallida*)." From this point on, "treponema" is laid aside and "spirochaeta" is the only term used. The part on tetanus contains no reference to foreign literature later than 1910, although much has appeared in foreign literature since then, and especially during the last two years, owing to the experience with this disease in the European war.

The second chapter, which begins with typhoid fever, is particularly excellent. It contains numerous charts and tables showing how this disease has gradually yielded to control. It is interesting to note here in the discussion on typhoid bacilluria, page 89, that the author advises hexamethylenamin in 10 grain doses as an aid in disinfecting the urine, although he says nothing concerning the inefficacy of this drug in an alkaline urine. It is rather to be regretted that the author, a teacher in one of the leading medical institutions of the country, should help to perpetuate one of the ordinary proprietary names for hexamethylenamin, referring to it as urotropin.

In the third chapter he deals with the diseases spread through the secretions of the nose and throat, including such important subjects as tuberculosis, diphtheria and the other acute exanthems. The author has taken advantage of all that recent studies have shown in connection with these conditions. It is here that the Schick test is fully discussed. Footnote 1 on page 164 belongs on page 165, and vice versa.

The fourth chapter, concerning insect-borne diseases, contains an excellent tabular arrangement giving various diseases, their causes, insects carrying the disease, and the mode of infection, as well as much practical material on the use of insecticides.

Unfortunately, infantile paralysis, which appears in Chapter V, devoted to miscellaneous diseases, is not complete with

the great epidemic of 1916. In the section on leprosy, the author recommends the establishment of a national leprosarium, and it is pleasant to report that this recommendation was carried out by the last Congress.

Chapter VI, on mental hygiene, is written by Dr. Thomas W. Salmon, a recognized specialist in this field. In the first edition this chapter was called "The Prevention of Mental Diseases," but it has been somewhat elaborated, which is the reason for the new title.

Following some general considerations on quarantine and isolation, the author takes up the second section of the book, which is devoted to immunity, heredity and eugenics. The discussions are not too technical for the average reader.

The third section concerns foods. This is a subject to which more and more attention is being given daily by physicians and by the public. Recent years have seen great advances, not only in methods of preparation and preservation of foods, but also in the prevention of falsification and adulteration. Milk especially is closely related to the spread of disease, and the chapter on milk is elaborate. In the chapter on plant foods, the author takes up beriberi and pellagra. He believes that Goldberger has proved his case in regard to pellagra, and that his work stands as one of the achievements in preventive medicine. Later, following a discussion of the views of the Thompson-McFadden Pellagra Commission (page 658):

> In my opinion, Goldberger's views are correct. The disease may be prevented, produced and even cured, if not too far advanced, in accordance with the view that it is caused by a faulty dietary. Before pellagra is eradicated, it will mean general education concerning balanced diets, and general prosperity sufficient to purchase the necessary articles making up such a diet.

A fourth section of the book is devoted to air, and takes up such practical questions as humidity, ventilation and poisonous gases. The fifth section concerns the soil, and the sixth section, water. Concerning the sanitation of swimming pools, he says (page 948):

> The combination of refiltration to clean the water and chlorination to disinfect the water is the best present available method to keep the water of swimming pools in satisfactory sanitary condition.

The next two sections, on sewage and refuse disposal, have been prepared by Prof. George C. Whipple, and Section 9, which concerns vital statistics, is by Dr. John W. Trask of the Public Health Service. Section 10 concerns industrial hygiene and diseases of occupation, a subject of great present day interest. In this section there is a most extensive table of industrial poisons, arranged by Dr. Charles B. Spruit of the Massachusetts General Hospital. Section 11 is devoted to schools, Section 12 to disinfection and fumigation, and the last section to the subject of military hygiene. This section is a brief discussion in thirty-two pages of the elementary requirements. It discusses the formation of the United States Army, and is up to date in its explanation of the new Officers' Reserve Corps. It follows in general Keefer's and Havard's excellent textbooks.

Dr. Rosenau's book has proved itself to be a standard on preventive medicine and hygiene.

RADIODIAGNOSTIC DES AFFECTIONS PLEUROPULMONAIRES. Par F. Barjon, Médicin des Hôpitaux de Lyon. Paper. Price, 6 francs. Pp. 186, with illustrations. Paris: Masson et Cie, 1916.

Three short chapters discuss the general value of the Roentgen ray in the diagnosis of diseases of the chest, and the technic specially suited to this work. Then follow chapters taking up the roentgenology of general and circumscribed pleurisy, and pneumothorax; diseases of the bronchi, including foreign bodies; diseases of the lungs, such as pneumonia, abscess, gangrene, atelectasis, various types of tuberculosis, and tumors. A chapter has been added on the location in the chest of bullets and other war projectiles. The illustrations are good. Numerous schematic figures are helpful. The text is clear and reasonably concise. The diagnoses seem to be reliable, as the clinical history, surgical operation or necropsy is used as a check on errors. The book will be helpful to the practitioner or to the specialist in diseases of the lung and pleura who, while willing to have the roentgenogram made by the technical expert, is not willing to entrust to him more than a fair share of its interpretation. A book such as this will assist the physician to be his own interpreter.

Social Medicine, Medical Economics and Miscellany

MEDICAL PREPAREDNESS

A circular has just been received from Dr. F. F. Simpson, Chief of the Medical Section of the Council of National Defense, presenting the correlated activities of the medical departments of the government, the Council of National Defense and the Advisory Commission, and the Committee of American Physicians for medical preparedness, setting forth the work that has already been accomplished, and what is now being done in the way of medical preparedness. The following is a summary of the important topics in this statement:

Under existing conditions, every physician as a loyal citizen of the United States should prepare to render his service to the government. Effective service can be rendered by cooperation in accordance with the following plan.

It is desirable at this time to state explicitly what the Council of National Defense and its various agencies are.

The Council of National Defense was created by Congress, Aug. 29, 1916, to coordinate industries and resources for the national security and welfare. The council consists of the secretaries of war, the navy, the interior, agriculture, commerce and labor. An advisory commission which it nominated to the president was also appointed, consisting of seven persons, each having special knowledge of some industry, public utility, or the development of some natural resource.

The Council of National Defense conducts its work under rules and regulations approved by the president which provide for an advisory commission to develop the special knowledge of such commission by suitable investigation, research and inquiry, and to make this available for the use of the council. The council may organize subordinate bodies for its assistance in special investigations, either by the employment of experts or by the creation of committees of qualified persons.

A committee of distinguished physicians was asked to present to the president names of medical men for membership on the advisory commission. Dr. Franklin H. Martin, Chicago, was selected.

The Advisory Commission of the Council of National Defense consists of the following civilians appointed by the president: Mr. Daniel Willard, president of the Baltimore and Ohio Railroad, chairman; Mr. Hollis Godfrey, LL.D., president of Drexel Institute, Philadelphia; Mr. Howard E. Coffin of Detroit (who is also chairman of the Committee on Industrial Preparedness of the Naval Consulting Board); Dr. Franklin H. Martin, Chicago; Mr. Bernard Baruch, financier, New York; Mr. Julius Rosenwald, president of Sears, Roebuck & Co., Chicago, and Mr. Samuel Gompers, president of the American Federation of Labor.

The executive activities of the Council of National Defense are coordinated and carried out through the medium of its director, Mr. W. S. Gifford, and the chiefs of the various departments represented by the members of the Advisory Commission. Dr. Frank F. Simpson is chief of the Medical Section of the Council of National Defense.

THE ADVISORY COMMISSION

The organization of the council and of the Advisory Commission provides that each member of the Advisory Commission shall gather about himself for the effective coordination of the activities he represents a committee or board consisting of representatives of governmental departments as well as civilians.

The Medical Committee, of which Dr. Franklin H. Martin is chairman, consists of William C. Gorgas, surgeon general of the U. S. Army; William C. Braisted, surgeon general of the U. S. Navy; Rupert Blue, surgeon general of the U. S. Public Health Service; Col. Jefferson R. Kean, director general of military relief of the American Red Cross; Dr. William H. Welch, member of the National Council of Research;

Dr. William J. Mayo, chairman of the Committee of American Physicians for Medical Preparedness, and Dr. Frank F. Simpson, chief of the Medical Section of the Council of National Defense, and secretary of the Committee of American Physicians for Medical Preparedness.

COMPONENT PARTS OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS

National and State Committees.—In April, 1916, the national committee was constituted by the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons. That committee undertook the responsible duty of formulating plans whereby the civilian medical resources of the United States might be ascertained and coordinated for such purposes as might be required by the federal government.

The national committee appointed a state committee of nine men in each state of the Union. The presidents and secretaries of the various state medical associations are ex officio members of their respective state committees. It was contemplated that at the proper time committees would be perfected in each county of the country. That time has now come, and county committees are being rapidly organized. The state committees are expected to select the county committees and to supervise their formation.

Name and Personnel of County Committees.—It is the policy of the Committee of American Physicians for Medical Preparedness that the various medical interests and activities of the county shall be represented on the county committees. This is to coordinate the interests and activities so that the medical profession shall be in position to aid in the national defense. That this plan may be carried out with uniformity and precision throughout the country, the various state committees have been requested to have all county committees bear the following distinguishing name, to wit, The Auxiliary Medical Defense Committee of —— County, in —— State, and to provide that the county committees shall include the following resident in the county: all members of National Committee of the Committee of American Physicians for Medical Preparedness; members of the state committee; representatives of the U. S. Army; representatives of the U. S. Navy; representatives of the U. S. Public Health Service; representatives of the state board of medical examiners; representatives of the state or city public health service; ranking medical officer of the National Guard; president and secretary of the local Medical Officers' Reserve Corps Association (if there be such organization); deans of medical schools; president and secretary of the county medical society; president and secretary of other important medical societies; medical director of the local Red Cross units, and other representative medical men.

DUTIES OF COUNTY COMMITTEES

From time to time, specific duties will be assigned to the various state and county committees. These county committees are urged to take prompt action at this time in accordance with the following:

1. That these committees cooperate with the national and state committees of the Committee of American Physicians for Medical Preparedness to make available needful information regarding the civilian medical resources of their communities, and to coordinate civilian medical activities for prompt moblization in case of need.

2. That they secure applicants:

(*a*) For the Army Medical Corps. For the full complement of troops already authorized by Congress, the regular army needs about 1,200 additional medical officers. If a million men are called, a corresponding increase will be required. (*b*) For the Medical Officers' Reserve Corps, for which from 20,000 to 30,000 medical reserve officers should be enrolled. (*c*) For the Naval Medical Corps, which needs about 350 additional officers. (*d*) For the Coast Defense Reserve Corps of the Navy, for which several hundred high class reserve medical officers are desired. (*e*) For the National Guard, such numbers as may be required to bring your local National Guard to full strength.

Physicians recommended for service in national defense must be of the highest type. Medical officers who go to field duty should be under the age of 45.

3. That they cooperate, individually and collectively, with the Medical Department of the Army, Navy and Public Health Service and with the Council of National Defense.

4. That they cooperate with the Red Cross in bringing that organization to the point of highest efficiency.

ACTIVITIES OF THE COMMITTEE OF AMERICAN PHYSICIANS

The various work done by the various state and other committees was of such extent and value that the Council of National Defense at its first meeting requested the Committee of American Physicians to continue their various activities under the guidance of the Council of National Defense, and asked the secretary of the Committee of American Physicians to act as chief of the Medical Section of the Council of National Defense. Since that time the various activities have gone forward with renewed energy.

Some of the activities which have either been completed or are well under way are:

1. Some 20,000 medical men selected from all parts of the country have been classified according to the training and the kinds of work which they do best.

2. An inventory of hospitals and other medical institutions is well under way.

3. It has been the policy of the Committee of American Physicians to aid the American Red Cross in bringing its medical department to the point of highest efficiency. With that in view, the members of the National Committee of the Committee of American Physicians became members of the national committee of the medical department of the American Red Cross; most of the members of the various state committees of the Committee of American Physicians were also made members of the state committee of the American Red Cross, and the various county committees will be expected to cooperate in carrying out the plans adopted by the two organizations.

4. The establishment of military training for senior medical students in a large percentage of the high grade medical schools of the country.

5. The establishment of more effective military training for hospital groups for members of the Medical Officers Reserve Corps, for dental students, and others.

6. The appointment of a committee for the standardization of medical and surgical supplies and equipment. The purpose of this work is to designate a list of articles essential to the successful conduct of civilian and military medical and surgical activities so that if it should become necessary to curtail production all of the energies of the drug and instrument makers shall be devoted to providing the necessary articles, rather than those which, however desirable, are not essential. On this standardization committee are representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and a number of distinguished members of the various specialties of civilian medicine.

7. Much valuable information supplied by medical and other observers who have worked in the war zones of Europe is being gathered and classified.

8. The presidents of important national medical organizations of the country have been requested to suggest to the medical section of the Council of National Defense the kinds of work which members of those organizations are best fitted to perform, and to suggest plans whereby their activities and resources might be utilized to advantage. This request does not contemplate an inventory and organization of these resources. Suggestions offered by the various organizations will be carefully considered, and such as conform to the plans of the Council of National Defense and can be utilized to advantage will be adopted, when the various organizations will be requested to cooperate in perfecting plans of the Council of National Defense.

Medicolegal

Competency of Persons of Unsound Mind to Be Witnesses

(*State vs. Herring et al.* (*Mo.*), *188 S. W. R. 169*)

The Supreme Court of Missouri, Division No. 2, affirms a judgment of conviction of the defendants, two attendants in the ward in which violent patients were confined in a hospital for the insane, of manslaughter in the fourth degree, where a patient in the ward who had been in the hospital nearly twelve years was permitted, over objection, to testify against the defendants. A Missouri statute provides that "the following persons shall be incompetent to testify: first, a person of unsound mind at the time of his production for examination," etc. The court says that this statute has never been construed on the precise point presented in this case. But many states have statutes either verbatim, as that of Missouri, or similar in substance and meaning to it; yet without a single dissenting voice the matter of competency of an insane person to testify has, all such statutes notwithstanding, been said to rest on a proper voir dire or preliminary examination as to competency, as at common law. In no state wherein a statute like that of Missouri on the question of competency exists has this court been able to find a contrary ruling, even though the words of the statute and the reason of the case may seem on but a casual view to call for a different rule. Likewise, the textbooks deduce from the adjudged cases a similar unanimous holding on the point. From the ruled cases we may deduce the rules: (*a*) that a person of unsound mind is competent as a witness, if (1) on examination he be found to be of sufficient mental capacity to understand the nature of an oath—that is, to know it is both a moral and a legal wrong to swear falsely, and that false swearing is a punishable crime in law, and (2) if he be possessed of sufficient mind and memory to observe, recollect and narrate the things he saw or heard; (*b*) that lawful confinement in an asylum for the insane, or an adjudication as an insane person, creates a prima facie presumption of absolute incompetency as a witness; but (*c*) such presumption is rebuttable by the voir dire (preliminary) examination of the witness alone, or when aided by extrinsic evidence; and (*d*) the burden of rebutting the presumption of incompetency in case of confinement in an asylum or adjudication as an insane person is on him who offers the witness; but (*e*) that, absent such confinement, or adjudication as an insane person, the burden of showing incompetency on account of unsoundness of mind is on him who objects on that ground.

Judgment Affirmed for Alleged Malpractice

(*Christie vs. Walton* (*Ind.*), *113 N. E. R. 750*)

The Appellate Court of Indiana, Division No. 2, affirms a judgment in favor of Plaintiff Walton, for some amount not stated in the report of the case, for damages for alleged malpractice in the treatment of a burn on the plaintiff's foot. The court says that it might as well be admitted that the weight of the evidence, most of which was given by physicians, was favorable to defendant Christie, a physician and surgeon, and did not tend to show that he was negligent in diagnosis or treatment, or that skin grafting would have been successful if used. However, this court was bound to sustain the verdict for the plaintiff if there was any competent evidence on which it could rest, without considering evidence which conflicted with that which tended to sustain it. The complaint stated that the burn which the plaintiff had received was so severe that 8 or 10 square inches of skin on her foot were deadened and destroyed, and the bones of the ankle and instep were scorched, charred, burned and deadened; that the only cure or safe course in the treatment of such injury was the amputation of the foot, or the grafting of skin over the parts which had been burned after the removal of the deadened and charred parts of the bones; that she placed herself under the care of the defendant, who undertook to treat her foot, but he failed to graft skin where the skin had been destroyed; that he told the plaintiff he could cure her foot without skin grafting, and without the removal of the charred bones, by the use of "scarlet red" salve; that he negligently and unskilfully continued to use his scarlet red salve, which was not adapted for use on a burn of such degree, and negligently failed to observe that his scarlet red remedy was insufficient for the purpose for which it was being used, and negligently failed to observe that the burn was not healing with new skin, etc. By a supplemental complaint it was alleged that since the filing of the complaint the foot and ankle had become further diseased on account of the defendant's negligent and unskilful conduct, and that, in order to prevent blood poison and the further impairment of the plaintiff's health, and to save her life, it was necessary to amputate her leg above the ankle, which amputation would have been prevented if the defendant had properly treated the limb by removing the deadened portions of bone and grafting skin. The court thinks the complaint sufficiently stated a cause of action, on the theory that the defendant improperly diagnosed the case, from a want of skill or care, and used an improper remedy, and continued to use it after he should have observed that it was ineffectual, and that such treatment made the plaintiff's condition worse, and that finally, as was apparent from the supplemental complaint, led to the amputation of her foot. The next question was as to the sufficiency of the evidence to sustain the verdict. There was evidence, some of which was expert, that scarlet red was not a standard remedy for such a burn, and, if proper in such a case, the injured and charred bones should have been first removed, and some evidence of the same character tending to show that the defendant was negligent in failing to remove the charred bones, and in continuing to use scarlet red after it was apparent that it was not a proper remedy. There being some evidence to support the verdict in the plaintiff's favor, the judgment of the lower court must be affirmed.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

Alabama State Medical Association, Montgomery, April 17-20.
American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
American Association of Immunologists, New York, April 6-7.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arizona Medical Association, Douglas, April 17-18.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
California State Medical Society, San Diego, April 17-19.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Carolina Medical Association, Spartanburg, April 17-19.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Wyoming State Medical Society, Casper, May 9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Ophthalmology, St. Louis

January, XXVI, No. 1

1 Halos of Glaucoma—Diffraction Phenomenon. V. B. Fischer, Boulder.—p. 1.
2 Causal Relationship of Deformities and Diseases of Nose and Throat to Diseases of Eye with Special Reference to Asthenopia. F. Stauffer, Salt Lake City.—p. 13.
3 Tests for Visual Acuity. E. Jackson, Denver.—p. 22.
4 Intranasal Operation for Lacrimal Obstruction with Simplified Technic. H. L. Baum, Denver.—p. 25.
5 Fuchs' Colomba with Loop Retinal Vein Hidden Behind Fold of Retina. M. Feingold, New Orleans.—p. 34.
6 Combined Use of Cross Cylinder and Astigmatic Dial. W. H. Crisp, Denver.—p. 42.
7 Treatment of Cataract During Earlier Stages. H. M. Thompson, Pueblo.—p. 47.
8 Cycloplegics in Measurement of Ametropia. E. Jackson, Denver. —p. 56.
9 Relation of Mouth to Ocular Diseases. W. C. Finnoff, Denver. —p. 66.
10 Some Personal Experiences which Have Stood the Test of Time. M. Black, Denver.—p. 73.
11 Tubercle of Conjunctiva. J. A. Patterson, Colorado Springs.—p. 76.
12 Use of Eyes of Kittens in Ophthalmic Operative Teaching. W. A. Fisher, Chicago.—p. 79.

Archives of Diagnosis, New York

January, X, No. 1

13 Diagnosis of Duodenal Ulcer. J. B. Deaver, Philadelphia.—p. 1.
14 Possible Dependence of Gastric and Duodenal Ulcer in Man on Disturbance of Internal Secretions. G. A. Friedman, New York. —p. 8.
15 Prognosis of Duodenal Ulcer. M. Einhorn, New York.—p. 24.
16 Pseudoleukemic Anemia of Von Jaksch. R. Kilduffe, Jr., Chester, Pa.—p. 26.
17 Relationship of Ductless Glands to Arterial Diseases. J. Daland, Philadelphia.—p. 32.
18 Ductless Glands in Dementia Praecox. F. X. Dercum, Philadelphia.—p. 38.
19 Field of Internal Medicine. R. W. Wilcox, New York.—p. 45.
20 Graham Steele Murmur (Relative Pulmonary Insufficiency). J. Epstein, New York.—p. 59.
21 Biochemistry, Immunity and Infectious Diseases. I. J. Levy, New York.—p. 62.

Archives of Internal Medicine, Chicago

March, XIX, No. 3

22 *Effect of Bandaging of Legs on Rate of Blood Flow in Feet. G. N. Stewart, Cleveland.—p. 335.
23 *Bile Content of Blood in Pernicious Anemia. M. A. Blankenhorn, Cleveland.—p. 344.
24 Refractometric Studies of Serum Proteins in Nephritis, Cardiac Decompensation, Diabetes, Anemia and Other Chronic Diseases. A. H. Rowe, Oakland, Calif.—p. 354.
25 *Bacteriologic Studies in Subacute Streptococcus Endocarditis. R. A. Kinsella, New York.—p. 367.
26 *Bacteriologic Studies in Acute Rheumatic Fever. H. F. Swift and R. A. Kinsella, New York.—p. 381.
27 Malone-Kiutsi Reactions in Pregnancy and Cancer. S. Berkowitz, New York.—p. 397.
28 Relation of Pregnancy and Childbirth to Pellagra in Women. J. F. Siler, U. S. Army, P. E. Garrison, U. S. Navy and W. J. MacNeal, New York.—p. 404.
29 Studies on Typhoidin. J. N. Force and I. M. Stevens, Berkeley, Calif.—p. 440.
30 Reliability of Wassermann Reaction. R. Ottenberg, New York. —p. 457.
31 *Bacteriology of Urine in Focal Infections; Its Relation to Nephritis. G. F. Dick and G. R. Dick, Chicago.—p. 493.

22. **Bandaging of Legs and Rate of Blood Flow.**—It has been suggested by some observers of the condition known as "trench-foot," that obstruction of the venous return by puttees was an important contributory factor. The effect of relatively short applications of the puttees was studied by Stewart. He found that a puttee applied with the usual degree of pressure on the leg causes no diminution in the blood flow through the foot. When it is put on so tight that some discomfort is produced the flow in the foot is at first reduced.

23. **Bile in Blood in Pernicious Anemia.**—The plasma of twenty patients in whom a diagnosis of pernicious anemia had been made was examined by Blankenhorn for bile and bile pigments. In sixteen there was found bilirubin in amounts sufficient to give a positive Gmelin test. In two of the remaining four the plasma was visibly jaundiced, but not deeply enough to give a test. Of the eighteen cases showing staining of the plasma, nine were visibly jaundiced in the sclerae; of the remaining nine, only one gave a history of ever being yellow. The cases showing the highest concentration of bilirubin showed the most marked evidence of rapid blood destruction, namely, increased output of urobilin in stool and urine, loss of strength from anemia, also the highest color index. Urobilin was not found in the plasma of any, although it occurred in the urine of all save one, this one being a case which showed absolutely no staining of the plasma. A positive Pettenkofer test for salts was found in sixteen out of twenty plasmas. Of the four which did not give a positive Pettenkofer test, there were two plasmas which contained a large amount of bilirubin and two which contained none at all. The cases giving the strongest Pettenkofer, hence highest concentration of salts, showed the most marked nerve lesions; in fact in three such cases the nerve lesions caused all the symptoms of the disease. Blankenhorn concludes that bile pigment is frequently found in the blood in pernicious anemia, and is the cause of the jaundice. The bile pigment is in some way fixed to the plasma and therefore does not appear in the urine. The presence of bile pigment in the blood is not always betrayed by jaundice. Bile salts are frequently found in the blood, alone or associated with bile pigment. The jaundice in pernicious anemia is hepatic in origin.

25. **Bacteriology of Streptococcus Endocarditis.**—It was Kinsella's purpose to search for distinctive features in the group of streptococci associated with subacute streptococcus endocarditis. Twelve typical cases were studied. Each patient repeatedly yielded a positive blood culture. The streptococcus isolated was always in pure culture and identical with the organisms of each of the other cultures in the same case. The streptococci belong to the saprophytic types according to Andrewes and Horder's classification and are of low virulence. They are nonhemolytic and may or may not be green producers. Biochemical and immunologic tests fail to show any constant identity between the individual streptococci concerned in producing this disease. The patients' blood serums contain agglutinating and complement fixing antibodies. The reduction in the bacteriemia following transfusion with blood and impure saline depends on febrile reactions on the part of the patient. If such reactions do not occur, as when saline-free transfusions are used, no reduction in bacteremia results. No noticeable benefit accrues in either case.

26. **Bacteriology of Rheumatic Fever.**—This study was undertaken by Swift and Kinsella to determine whether any constant cultural or immunologic type of bacterium was associated with acute rheumatic fever. They studied the type of streptococci which they were able to isolate from the blood of patients with acute rheumatic fever. In all fifty-eight cases have been studied. All were typical cases, showing fever and polyarthritis, and responded in the characteristic manner to salicylates. Altogether eighty-five blood cultures were made on fifty-eight patients with seven positive results, a percentage of 8.3. All of the cultures of joint exudates have been sterile. Similar nonhemolytic streptococci have been recovered from the active endocardial lesions in only half of the fatal cases of acute rheumatic fever. From the above results it seems evident that no type of streptococcus has been constantly associated with acute rheumatic fever. The authors do not feel that the etiologic relationship between the streptococcus and acute rheumatic fever has been definitely proved, but if the streptococcus is the etiologic agent in acute rheumatic fever, it is shown by means of cultural and immunologic studies that it is through various members of the viridans group, and hence no one member can be called the *Streptococcus rheumaticus.*

31. **Bacteriology of Urine in Focal Infection.**—Eighteen patients were examined by G. F. and G. R. Dick. In six of these the bacteria when found in the urine did not correspond to those found in the focus of infection from which cultures were made. In four cases a partial correspondence was found between the bacterial flora of the urine and that of the focus

of infection. In eight cases the correspondence was more striking. Two of the eight patients showed no clinical evidence of renal lesion. One of these, however, had persistently high blood pressure (150 mm.). In the remaining patients there were from mild to severe renal lesions present, but there was no very constant relation between the severity of the lesion and the number of bacteria in the urine. The finding of considerable numbers of bacteria in the urine in 66 per cent. of patients with evident foci of infection indicates that in diseases where migration of bacteria from foci of infection takes place, the bacteria are often present in the urine.

Arkansas Medical Society Journal, Little Rock

March, XIII, No. 10

32 Management of Fractures. J. A. Foltz, Fort Smith.—p. 203.
33 Radium; Its Physical Properties and Therapeutic Value. D. Gann, Jr., Little Rock.—p. 205.

Colorado Medicine, Denver

March, XIV, No. 3

34 Faucial Tonsil in Its Relation to Systemic Conditions. A. C. Magruder, Colorado Springs.—p. 68.
35 Pledge of American College of Surgeons and What It Signifies. H. G. Wetherill, Denver.—p. 75.
36 Nature and Treatment of Sciatica. C. L. Pershing, Denver.—p. 79.
37 Five Cases of Tuberculosis Treated with Cyanocuprol. N. Kunitomo, Denver.—p. 83.
38 Constipation and Obstipation. F. R. Coffman, Denver.—p. 86.

Indiana State Medical Association Journal, Fort Wayne

March, X, No. 3

39 *Two Cases of Extra-Uterine Pregnancy at or Near Term. E. D. Clark, Indianapolis.—p. 89.
40 *Radium Therapy. T. C. Kennedy, Indianapolis.—p. 105.

39. Abstracted in THE JOURNAL, Oct. 21, 1916, p. 1249.

40. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1327.

Journal of Biological Chemistry, Baltimore

March, XXIX, No. 2

41 *Vitamin Content of Brewers' Yeast. A. Seidell, Washington, D. C.—p. 145.
42 Improved Nephelometer Colorimeter. P. A. Kober, Albany, N. Y.—p. 155.
43 Rapid Method for Determining Calcium in Blood and Milk. H. Lyman, Boston.—p. 169.
44 *Studies on Animal Diastases. Increased Diastatic Activity of Blood in Diabetes and Nephritis. V. C. Myers and J. A. Killian, New York.—p. 179.
45 Amino-Acid Nitrogen Content of Blood of Various Species. J. C. Bock, New York.—p. 191.
46 Separation and Estimation of Butyric Acid in Biologic Products. I. K. Phelps and H. E. Palmer, Washington, D. C.—p. 199.
47 Thiobarbituric Acid as Qualitative Reagent for Ketohexose. G. P. Plaisance, Ames, Iowa.—p. 207.
48 Growth of Isolated Plant Embryos. G. D. Buckner and J. H. Kastle, Lexington, Ky.—p. 209.
49 Fetal Athyrosis. Study of Iodin Requirement of Pregnant Sow. G. E. Smith, Bozeman, Mont.—p. 215.
50 *Studies in Carbohydrate Metabolism. Influence of Alkali Administration on Blood Sugar Content in Relation to Acid Base Producing Properties of Diet. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 227.
51 *Id. Influence of Acid Forming and Base Forming Diets on Blood Sugar Content. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 233.
52 Id. Relation of Epinephrin Glycosuria to Dosage and to Character of Diet. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 245.
53 *Id. Further Experiments on Influence of Intravenous Injection of Sodium Carbonate on Epinephrin Hyperglycemia and Glycosuria. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 253.
54 *Id. Relation of Diet to Glycogen Content of Liver. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 255.
55 Id. Influence of Intravenous Injection of Sodium Carbonate on Hyperglycemia and Glycosuria Following Subcutaneous Administration of Glucose. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 265.
56 Id. New Experiments on Mechanism of Salt Glycosuria. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 273.
57 Studies of Autolysis. Influence of Bile on Autolysis. H. C. Bradley and J. Taylor, Madison, Wis.—p. 281.
58 *Use of Cotton Seed as Food. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 289.
59 *Composition of Adipocere. R. F. Ruttan and M. J. Marshall, Montreal, Canada.—p. 319.
60 Applications of New Reagent (Permutit) for Separation of Ammonia. Colorimetric Determination of Ammonia in Urine. O. Folin and R. D. Bell, Boston.—p. 329.
61 *Calcium Content of Cerebrospinal Fluid, Particularly in Tabes Dorsalis. J. O. Halverson and O. Bergeim, Philadelphia.—p. 337.
62 Nature of Dietary Deficiencies of Oat Kernel. E. V. McCollum, N. Simmonds and W. Pitz, Madison, Wis.—p. 341.
63 Method of Timed Intravenous Injections. R. T. Woodyatt, Chicago.—p. 355.
64 Effect of Bile and Bile Salts on Reaction Between Oleic Acid and Sodium Bicarbonate. F. B. Kingsbury, Minneapolis.—p. 367.
65 *Variations in Composition of Human Milk During First Eleven Days After Parturition. F. S. Hammett, Los Angeles, Calif.—p. 381.
66 Rate of Urea Excretion. Effect of Changes in Blood Urea Concentration on Rate of Urea Excision. T. Addis and C. K. Watanabe, San Francisco.—p. 391.
67 Id. Effect of Changes in Volume of Urine on Rate of Urea Excretion. T. Addis and C. K. Watanabe, San Francisco.—p. 399.

41. **Vitamin Content of Brewers' Yeast.**—In the case of pigeons, the vitamin deficiency of an exclusive diet of polished rice is just replaced by daily doses of 0.5 to 1.0 c.c. of the clear filtrate from autolyzed brewers' yeast. Doses of dried freshly pressed yeast approximately equivalent to 1.0 c.c. doses of autolyzed yeast do not effectively replace the vitamin deficiency of a diet of polished rice.

44. **Increased Diastatic Activity of Blood in Diabetes and Nephritis.**—A simple method for the determination of the diastatic activity of human blood is described by Myers and Killian. The diastatic activity of the blood in six normal human subjects ranged from 15 to 17 with this method. In a series of thirteen cases of diabetes, the figures for the diastatic activity of the blood varied from 39 to 74. In a series of twenty-three cases of nephritis, eleven showed diastase figures ranging from 30 to 52. Of the eleven cases, seven exhibited marked nitrogen retention. The results suggest that the increased diastatic activity in both diabetes and nephritis (as shown by the analyses of the blood) may be the important factor in the production of the hyperglycemia in these conditions. The increased diastatic activity of the blood in nephritis finds probable explanation in the decreased excretion of diastase in the urine, now well known in this condition, but it is not possible, at present, to offer a satisfactory explanation of the increased diastatic activity of the blood in diabetes. A fall in the blood diastase would appear to afford a more reliable guide to the efficacy of the dietetic treatment in diabetes than either the blood sugar or urine sugar. Furthermore, an increase in blood diastase may constitute a very early sign of impending diabetes.

50. **Influence of Alkali Administration on Blood Sugar.**—In new experiments on the influence of sodium carbonate on the blood sugar content of normal rabbits on a mixed diet, hyperglycemia has invariably failed to manifest itself. The variable potency of sodium carbonate in the production of hyperglycemia, as reported by Underhill, cannot be explained by variations in the acid-base-producing possibilities of the diet, inasmuch as wide ranges in these directions apparently play a small part in influencing the blood sugar content of normal rabbits.

51. **Influence of Acid-Base Diets on Blood Sugar.**—In a normal rabbit the blood sugar content is not significantly changed by variations in the acid-base content of the diet which are sufficient to cause a marked change in the hydrogen ion concentration of the urine. These results are in agreement with those of the preceding paper, which indicate that the blood sugar content of a normal rabbit is not usually appreciably affected by intravenous injections of dilute alkali.

53. **Influence of Sodium Carbonate on Epinephrin Hyperglycemia.**—The present experiments confirm the statement of Underhill that the hyperglycemia and glycosuria provoked by epinephrin are both significantly decreased if sodium carbonate is administered at suitable periods of time previous to epinephrin introduction. Intravenous injection of sodium carbonate modifies significantly the influence of the minimum effective dose of epinephrin, but does not prevent the occurrence of hyperglycemia and glycosuria. In fact, it appears that, with the smaller dose of epinephrin, hyperglycemia and glycosuria are diminished relatively less by sodium carbonate than when larger doses of epinephrin are administered.

54. **Relation of Diet to Glycogen Content of Liver.**—The results obtained indicate that in normal rabbits a base forming diet is somewhat more efficient in the formation of glycogen than an acid producing diet. This is in agreement with the results of previous investigators, who have found that an excess of alkali contributes to the accumulation of glycogen. Notwithstanding this fact, it has also been demonstrated that a large storage of glycogen may take place on an acid forming diet when sufficient food is ingested.

58. **Cotton Seed as Food.**—The studies made by Osborne and Mendel show that cotton seed kernels are unsatisfactory for nutrition. Such samples of cotton seed meal and flour as have been tested were valuable foods for growing rats when used as the sole source of protein in the food, or when used in smaller quantity to supplement other less efficient protein concentrates. The injurious substance in the kernels can be removed by extraction with ether. The ether soluble material is deleterious, either because it contains some toxic ingredient or because it renders the food containing it so unpalatable that the animals refuse to eat it. Foods containing cotton seed oil prepared by pressing the kernels in the cold, or furnished as the crude unbleached commercial oil prepared by heating the kernels before pressing them, are eaten without detriment by rats. By treatment with steam under suitable conditions the kernels lose their deleterious effect on rats.

59. **Composition of Adipocere.**—As a result of their studies Ruttan and Marshall conclude that adipocere is the residue of the preexisting fats of animals. It is composed almost entirely of the insoluble saturated fatty acids left after the slow hydrolysis of the fats in wet ground. The protein matter has entirely disappeared and the glycerol, soaps, etc., resulting from the hydrolysis have been carried away in aqueous solution. The insoluble hydroxy stearic acids which are so characteristic of adipocere are probably derived from a portion of the oleic acid in the original fat by hydration. No margaric acid or oxy margaric acid is present. Ammonia and other soluble soaps are absent; calcium soaps alone are present in small quantity in a matured specimen of adipocere.

61. **Calcium Content of Cerebrospinal Fluid.**—The calcium content of the cerebrospinal fluid of adults is very constant at about 5.0 mg. of the element in 100 c.c. of fluid. This is approximately one half the calcium content of the blood plasma or serum of similar individuals. The calcium content was determined by Halverson and Bergeim in a number of cases of syphilis of the nervous system. Variation greater than 0.3 mg. from the value given was obtained in but a single very severe case. In tabes dorsalis an average of 5.1 gm. was obtained. Repeated drainage did not appear to affect the composition of the fluid in respect to calcium.

65. **Variations in Composition of Milk After Parturition.**—In summing up the variations observed in the chemical composition of human milk during the first eleven days after parturition, Hammett found that from the quantitative point of view fat and lactose increase in amount during the period studied, while there is a falling off in the production of protein. The three constituents fall into the following order of decreasing variability; fat, protein, lactose. The protein mechanism is apparently the best regulated and is less dependent on the factors controlling the fat and lactose production than they are on each other. For the single constituents there is a production plane uniform for the individual subject. This plane of production is fixed for the individual, independent of the plane of nutrition and dependent on the individuality. An increase or decrease in the lactose production is generally accompanied by a change in the opposite direction in the percentage of fat and protein.

Journal-Lancet, Minneapolis

March 15, XXXVII, No. 6

68 Relation of Medical Men to Present Day Social Changes. J. G. Cross, Minneapolis.—p. 169.
69 *Standardization of Digitalis and Potency of Minnesota Leaf. R. E. Morris, Minneapolis.—p. 176.
70 Obstetrics in Rural Community. M. D. Westley, Cooperstown, N. D.—p. 181.
71 Indications for Cesarean Section. W. A. Coventry, Duluth.—p. 185.
72 Technic of Tonsillectomy. J. Matthews, Rochester.—p. 190.
73 Diagnosis of Gastroduodenal Lesions. J. M. Lajoie, Minneapolis.—p. 191.

69. **Standardization of Digitalis and Potency of Minnesota Leaf.**—Among the various species of Minnesota digitalis Morris assayed (grown by the Department of Pharmacy, University of Minnesota) ferruginea, lutea, lanata, grandiflora and others show that they equal the purpurea, the form ordinarily used. There exist some twenty-three or more species and numerous varieties. Ferruginea, lutea and lanata exceed the purpurea in toxicity, the last two belonging to the narrow-leaf form, and have been found true to name and reproduce themselves in pure stand. During the observations in assaying the various forms, the species lutea was prominently noticed. It ranks in toxicity with the higher grades of digitalis purpurea, but the lack of irritation and the quiet lethal period in cats was so marked as to suggest the use of digitalis lutea in man with the hope of finding here a preparation causing less than the usual gastro-intestinal irritation. As a result of this suggestion, Morris is now using both the tincture and the infusion of digitalis lutea clinically in the wards of the University Hospital with the best of results. Morris emphasizes (1) the necessity for a greater care in the use of digitalis, (2) the necessity for a standardized drug, and (3) an accurate dosage. He says that there is no need of using the exorbitant priced extractives if these three points are followed.

Medical Record, New York

March 17, XCI, No. 11

74 Real Cancer Problem. L. D. Bulkley, New York.—p. 441.
75 Physiology and Pathology of Menopause. G. Richter, St. Louis.—p. 446.
76 New Status of Exophthalmic Goiter. E. H. Reede, Washington, D. C.—p. 450.
77 Chronic Appendicitis Mistakes. J. R. Verbryeke, Jr., Washington, D. C.—p. 455.
78 Neurologic Pitfalls in General Practice. M. Keschner, New York.—p. 458.

New York Medical Journal

March 17, CV, No. 11

79 Medical Corps of Navy. R. C. Holcomb, Washington, D. C.—p. 481.
80 Prevention and Treatment of Cancer Based on Roentgen-Ray Findings of Dental Infection and Use of Autogenous Vaccine. S. Tousey, New York.—p. 485.
81 Surgical Treatment of Puerperal Septicemia. A. S. Brinkley, Richmond, Va.—p. 487.
82 Surgical Aspects of Gastric and Intestinal Stasis. H. F. Graham, New York.—p. 490.
83 Saliva in Diabetics. L. N. Boston and L. W. Kohn, Philadelphia.—p. 497.
84 Significance and Technic of Cardiac Functional Tests. C. W. Lieb, Watkins.—p. 502.
85 Treatment of Duodenal Ulcer from Medical Standpoint. W. A. Bastedo, New York.—p. 505.

New York State Journal of Medicine

March, XVII, No. 3

86 Studies in Acidosis. C. G. Stockton and J. L. Butsch, Buffalo.—p. 107.
87 Typhoid in Children. G. C. Sincerbeaux, Auburn.—p. 110.
88 Diagnosis in Gynecology. T. J. Watkins, Chicago.—p. 112.
89 *Modification of Usual Clubfoot Operation, by Addition of Tendon Transplantation or Tendon Fixation, or Both. P. Le Breton, Buffalo.—p. 115.
90 *Case of Leukemia in Boy, with Some Observations on Benzol. F. S. Winslow and W. D. Edwards, Rochester.—p. 116.
91 Is Medicine a Business? J. M. Swan, Rochester.—p. 118.
92 Useful Urine Analyses. H. Greeley, Brooklyn.—p. 121.
93 Practical Experiences with Ductless Glands. S. Block, Brooklyn.—p. 125.
94 Effects of Tonsil Operations in Singers; Analysis of Five Thousand Cases. I. W. Voorhees, New York.—p. 131.
95 Health Insurance from Public Health Viewpoint. A. Krida, Schenectady.—p. 134.
96 Experiences in French Military Hospital. R. M. Eaton, Wellsville.—p. 137.
97 Experiences in Serbia During War, with Special Reference to Typhus Epidemic of 1915. E. F. Butler, Yonkers.—p. 139.
98 Honor of Profession. L. Emerick, Saugerties.—p. 144.

89. **Clubfoot Operation.**—During the past three years Le Breton has been adding to the usual wedge operation, two procedures, sometimes the one, sometimes the other, sometimes both, according to the case. These are, first, a tendon

transplantation of the tibialis anticus, and often the big toe extensor, to the outer side of the foot, and second, a tendon fixation of part or the whole of one peroneal tendon in the fibula. The transplantation robs the inner muscles of some of their excessive pull, and transfers it to the outer side. The fixation absolutely prevents a recurrence of the deformity. The author has operated in seventeen severe cases, and has done the transplantation fifteen times and the fixation six times. In three cases both the transplantation and the fixation were used with good results in general. He firmly believes that these measures, commonly used in paralytic cases only, are of great value when added to the usual operation for congenital clubfoot.

90. **Leukemia and Benzol.**—During the use of benzol (benzene, C_6H_6) in a case of myelogenous leukemia (boy, 14 years of age), Winslow and Edwards noted the following: (1) benzol produced marked diminution of white cells and its use is attended with benefit in leukemia; (2) benzol frequently produces marked irritation when given either per mouth, per rectum, subcutaneously or intravenously; (3) benzol is a dangerous drug and its administration should be carefully watched for both the symptoms of benzol poisoning and for a too marked or too rapid reduction of the white cell count; (4) benzol cannot be used intravenously.

Northwest Medicine, Seattle

March, XVI, No. 3

99 Obscure Causes of Infant Mortality. J. W. Amesse, Denver.—p. 65.
100 Cardiac Arrhythmias. B. Smith, Los Angeles.—p. 70.
101 Visceral Angioneurotic Edema; Report of Case. A. A. Matthews, Spokane.—p. 75.
102 *Relation of Pleurisy to Tuberculosis. E. A. Pierce, Portland, Ore.—p. 79.
103 Hygiene of Pregnancy. W. C. Heussy, Seattle.—p. 81.
104 Indications for and Methods of Surgical Interference in Toxemia of Pregnancy. T. Torland, Seattle.—p. 84.

102. **Relation of Pleurisy to Tuberculosis.**—Two series of cases dating from 1905 until the present time are analyzed by Pierce. In the first series of 1,767 cases of pulmonary tuberculosis, 614, 35 per cent., gave a history of pleurisy. In the second series of 518 cases, 52 per cent., gave a history of previous pleurisy. Including simple adhesions with other more marked changes in the pleura, pleuritis was found in 74.4 per cent. of 215 cases. Pierce believes that, particularly on the Western coast, where the water is so free from minerals, a condition of demineralization is very likely to prevail in the preincipient stage of pulmonary tuberculosis and is probably a factor which provides a willing host for the invasion of pleurisy. Pierce has seen many cases of pleurisy with effusion in cases in which there was no history of pain, the only inconvenience which would be recalled by the patient being a slight cough and more or less restricted breathing, with perhaps fever and an occasional chill and sweat.

Southwestern Medicine, El Paso, Texas

February, I, No. 2

105 Medicomilitary Responsibility. G. F. Keenan.—p. 12.
106 *Infectiousness of Tuberculosis. G. B. Webb, Colorado Springs, Colo.—p. 19.
107 *Heliotherapy in Treatment of Tuberculosis. A. G. Shortle, Albuquerque, N. M.—p. 30.
108 Pharynx as Point of Primary Infection in Tuberculosis. R. R. Brownfield, Phoenix, Ariz.—p. 43.
109 Therapeutic Nihilism in Tuberculosis. A. D. Wilson, Prescott, Ariz.—p. 49.
110 Gunshot Wounds of Knee; Report of Cases. F. P. Miller, El Paso.—p. 55.
111 Chronic Empyema of Maxillary Sinus. Operation by Intranasal Route. J. J. McLoone, Phoenix, Ariz.—p. 60.
112 Lymphadenitis of Mediastinum. M. P. Schuster, El Paso.—p. 66.

106. **Infectiousness of Tuberculosis.**—To take advantage of the knowledge we have gained in regard to the infectiousness of tuberculosis, Webb says, we must demand, that all consumptives should shield their mouths when coughing, especially in the presence of children, and that their expectoration shall be properly destroyed. All young children, especially infants, should be removed from contact with the spitting consumptive. The general public must be reassured that there can be no danger to them from ordinary contact with the consumptive. Schoolchildren in all communities should have the services of school physicians whose duty should be to see that children who are below par and who would seem to be candidates for active disease should be cared for and placed in open air pavilions until such dangers are passed. To stamp out consumption in adults we must begin with the child. In all cities open air pavilions or so-called preventoriums, such as at present exist in a few, ought to be built, where such children can be cared for properly.

107. **Heliotherapy in Treatment of Tuberculosis.**—New Mexico, according to Shortle, presents the ideal climatic conditions for carrying out the treatment, and is superior, not only to the rest of America, but to Switzerland as well. Shortle has used it for almost five years chiefly in pulmonary cases. He feels that there is a certain analogy between the use of heliotherapy and treatment by tuberculin. He cautions that with heliotherapy one must, with the pulmonary case, avoid too long exposures, watch the temperature and pulse closer than in the surgical types, continue the treatment over a longer period and altogether use the treatment much more cautiously than when treating other types of tuberculosis. Repress overenthusiasm in the patient and insist that they do not exceed the exposure prescribed, otherwise they are almost sure to take long exposures with the result that they will develop a fever anywhere from 100 to 103 F., together with increase in sputum, and for several days, at least, will suffer marked depression. One good resulting from the firm pigmented skin is a comparative freedom from colds. This alone, in Shortle's opinion makes the treatment worth while. Many pulmonary cases make better progress after beginning solarization.

Tennessee State Medical Association Journal, Nashville

March, IX, No. 11

113 Who Should Operate? Plea for More Careful Preoperative Study of Surgical Cases. C. P. Fox, Greeneville.—p. 425.
114 Sliding Hernia; Report of Four Cases. C. G. McMahon, Copperhill.—p. 431.
115 Case of Syphilis of Lung; Results of Treatment. J. A. Witherspoon, Nashville.—p. 435.
116 Some Fallacies in Accepted Treatment for Opiumism. H. E. Goetz, Knoxville.—p. 440.

Texas State Journal of Medicine, Fort Worth

March, XII, No. 11

117 Advance of Good Surgery. T. T. Jackson, San Antonio.—p. 417.
118 Report of Committee on Study of Venereal Diseases. H. C. Moore, Houston.—p. 418.
119 Spontaneous Cure of Tuberculosis by Nature's Processes. Protest Against Use of Tuberculin for Immunization. B. Cornick, San Angelo.—p. 421.
120 Cervical Suspension for Retrodisplacements and Prolapse of Uterus. H. White, El Paso.—p. 426.
121 Surgical Treatment of Retroversion of Uterus. F. C. Beall, Fort Worth.—p. 428.
122 Lange's Colloidal Gold Test. J. H. Black, Dallas.—p. 431.
123 Practical Value of Wassermann Reaction with Analysis of Over Five Hundred Tests. W. H. Moursund, Dallas.—p. 435.
124 Senile Hypertrophy of Prostate Gland. A. I. Folsom, Dallas.—p. 439.

Wisconsin Medical Journal, Milwaukee

March, XV, No. 10

125 *Prenatal and Natal Conditions in Wisconsin. D. R. Mendenhall, Madison.—p. 353.
126 Mental Disorders and Social Worker. W. F. Becker, Milwaukee.—p. 369.
127 Blood Group Determinations as Preliminary Step to Blood Transfusion. L. M. Warfield, Milwaukee.—p. 376.
128 *Blindness Cured by Intranasal Operation. F. Pfister, Milwaukee.—p. 380.
129 Yaws: Report of Two Cases. E. Evans, La Crosse.—p. 381.

125. **Prenatal and Natal Conditions.**—According to Mendenhall, more children die in Wisconsin from prenatal and natal causes, and during the first days and weeks of life, than in the average United States. Over 50 per cent. of the Wisconsin infant deaths occur during the first month of life; four fifths of these are due to prenatal and natal conditions. Over 81 per cent. of the deaths the first month in the cities, and over 85 per cent. in the rural districts, were due to similar causes, which mean that these children were born too weak, too injured or too diseased to live. The death rate from maternity is gradually increasing in Wisconsin, as it is throughout the United States. The death rate from puerperal sepsis, which accounts for nearly one half the maternal deaths, is also

rising steadily. Sixty-four per cent. of the puerperal deaths in 1915 in Wisconsin were due to sepsis or eclampsia, which are largely avoidable. Maternity can be proved to be a greater danger to women between 15 and 50 than either tuberculosis or cancer. Midwifery is not prevalent in Wisconsin. Physicians deliver five sixths of the Wisconsin babies. There is no proof that midwives are more culpable in regard to puerperal sepsis than the general practitioner. On the contrary, an inverse relation may be made out between the percentage of midwifery in most large cities and the puerperal death rate.

Puerperal deaths are inaccurately reported. Puerperal sepsis seems to be more incorrectly and insufficiently diagnosed than any other form of puerperal disease. Diagnoses often wilfully obscure or misleading are frequently found on death certificates, the inference being that the physician is unwilling to shoulder the blame following his own ignorance or carelessness. To remedy these conditions Mendenhall advises: The education of the community until every man and woman in it realizes what overwork and lack of care of the prospective mother means to her child and to herself. A widespread dissemination of the fact that puerperal sepsis is wound infection, and nine cases out of ten could have been prevented. The making of obstetrics a specialty, and the removal of the care of maternity cases from the hands of the general practitioner. The establishment or improvement of well equipped hospitals and nursing units in the rural counties or rural parts of urban counties, so situated as to be of easy access to the greatest number of the county residents. Such hospitals should have a separate pavilion for maternity work, with both free and pay beds, and a separate staff of attendants, trained especially for the work. Puerperal sepsis should be made a notifiable disease. Publicity is the best method to check the increase of mortality due to the inefficiency, ignorance or carelessness of the attendant in childbirth. The care of the childbearing woman should be a state obligation.

128. **Blindness Cured by Intranasal Operation.**—A young woman, aged 20, developed blindness of the right eye. A week previously she had some pain in her head and noticed vision was blurred in the right eye. This condition grew gradually worse. On the second day after symptoms were first noticed she was quite ill with dizziness, nausea, some pain in eye and considerable headache. By the third day vision was gone. She could not distinguish light. The right side of the nose was greatly obstructed and the right eye presented a slight condition of puffiness and exophthalmos. Under a general anesthetic Pfister removed the perpendicular plate of the ethmoid, because this part of the septum was strongly leaning over toward the ethmoidal region of the right side. The middle turbinate, which was enlarged, was also removed, likewise polyps and enlarged ethmoidal cells and granulomatous material in the posterior ethmoidal region. On exploration of the sphenoid sinus and enlarging the opening of the same, nothing pathologic was found within that cavity. Clearing away the anterior ethmoidal cells and the bulla-ethmoidalis and entering the frontal sinus intranasally, no satisfactory explanation of the puffiness of the upper eyelid could be found. Pfister opened the frontal sinus externally and found a mucocele, filling the cavity and exerting pressure. The external wound was closed primarily after the mucocele was removed and the frontal duct enlarged. A few days after the operation the patient began to notice a return of the sight and two weeks after, the sight was apparently restored to normal, and has remained so.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

January, IV, No. 15

1 Monocular Blindness Following Diffused Violence to Skull; Its Causation and Treatment. J. H. Pringle.—p. 373.
2 *Ambard's Constant and Its Clinical Importance, Especially in Urinary Surgery. K. Nakagawa.—p. 386.
3 Sacculi of Large Intestine, with Special Reference to Their Relations to Blood Vessels of Bowel Wall. H. Drummond.—407.
4 *The Secondary Suture. J. T. Morrison.—p. 414.
5 French Surgery in 1915. Tuffier.—p. 420.
6 Investigation of Histology of Tissues, Immediate and Remote from Point of Injury, in Gunshot Wounds of Liver, Spleen, Kidney, Intestines, Blood Vessels, Subcutaneous Tissue and Aponeurosis and Muscles. E. F. Bashford.—p. 433.
7 Autoplastic Transplantation of Bone in Injuries of Skull. Report of Cases. A. E. Morison.—p. 454.
8 Acquired Diverticula, Diverticulitis, and Peridiverticulitis of Large Intestine. W. H. M. Telling and O. C. Gruner.—p. 468.
9 Effects on Heart and General Circulation which Follow Wounds of Blood Vessels, and on Variations in Local Physical Signs Present at Site of Injuries. G. H. Makins.—p. 531.

2. **Ambard's Constant.**—Ambard's coefficient (especially in its extreme limits) is regarded by Nakagawa as being a very reliable method of gaging the state of renal function. A constant of normal value does not necessarily imply freedom from disease; it is frequently found in association with recognizable surgical affections of the kidneys. In such cases a normal constant indicates that the renal defect is compensated—that the kidneys have sufficient reserve capacity to meet any increase in the work thrown on them. A constant of increased value signifies some impairment of renal function, compensation being either incomplete or totally wantiqg. In such a case it may be either that the functionating renal parenchyma is incapable of coping with the extra work thrown on it, or that the spread of the disease in the functionating tissue is too rapid to allow of compensation. In some cases the constant is of diagnostic significance. Thus, a normal constant in association with renal tuberculosis suggests that one kidney only is affected; a constant of increased value indicates either that the tuberculous condition is bilateral, or that it is associated with a toxic nephritis of the opposite kidney.

4. **Secondary Suture.**—Morrison looks on secondary suture as a valuable method of treatment, above all, in the case of large flesh wounds. A successful result depends on how early one is able to close the wound; also to a large extent on the care taken to avoid sepsis. The bacteriologic test—even if only a rough and ready one—has been found to be a reliable guide.

British Medical Journal, London

March 3, I, No. 2931

10 Roentgenology in Clinical Medicine and Surgery. C. T. Holland.—p. 285.
11 Case of Ligation of Innominate Artery for Traumatic Aneurysm of Carotid. T. Sinclair.—p. 288.
12 Early Treatment of Compound Fracture of Long Bones of Extremities. B. Hughes.—p. 289.
13 *An Appliance for Ambulatory Treatment of Fractures of Thigh. C. M. Page.—p. 292.
14 *Drainage of Septic Knee Joints. W. A. Carline.—p. 294.
15 *Intravenous Injections of Antimony in Treatment of Malaria. G. C. Low and H. B. Newham.—p. 295.

13. **Ambulatory Treatment of Fractures of Thigh.**—The appliance described by Page in its simplest form consists of two plaster-of-Paris collars; the upper one surrounds the thigh at the level of the great trochanter, and abuts on the tuber ischii; the lower is molded onto the two condyles of the femur just above the level of the knee joint. These two *points d'appui* are united by two extension screws, which lie just behind the central coronal plane of the femur. The extension screws, when adjusted, procure long axis extension of the femur, and pass the weight of the body taken on the foot from just above the knee direct to the pelvis. The principle employed is similar to that of Hackenbruch's "Distraktion klammer." The fixation at the knee is that used by Professor Delbet in his spring splint for the thigh. The appliance leaves the knee joint free. If it is used in a case in which little or no union is present, fixation of the knee joint and an extension of the lower *point d'appui* to the ankle should be effected for a short period.

14. **Drainage of Septic Knee Joints.**—In the early cases the knee joints were washed out by Carline with 1 in 20 phenol solution. All the tubes were closed by nipping them, except that engaged by the syringe, and the knee joint fully distended by the disinfectant; the tube nearest the back of the joint was then freed and the disinfectant and pus allowed to escape,

the process being repeated until the disinfectant came away free from the pus. Lately Carline washed out the joint with a saturated solution of magnesium sulphate.

15. **Malaria Treated with Injections of Antimony.**—A patient with heavy crescent infection was given antimony injections by Low and Newham, a careful daily estimation of the crescents being made afterward. The vitality of the parasites was also tested to determine whether they would flagellate or not after the administration of the drug. The antimony had not the slightest effect on the crescents, their number fluctuating up and down quite irrespective of the injections. Six intravenous injectons in all were given, beginning with 1 grain and increasing to 2½ grains, the last three injections consisting of the maximum dose. That the parasites were not dead was proved by the fact that they were alive and active in fresh blood, and proceeded to flagellation in a normal manner. In addition to the crescents, a scanty ring infection was also present; again the drug appeared to have no effect on these. Beneficial results were obtained from quinin and increasing doses of arsenic.

Glasgow Medical Journal

February, LXXXVII, No. 2

16 *Action of Pituitary Extract on Surviving Human Uterus. F. J. Charteris.—p. 65.
17 Residual Urine in Senile Bladder; Conduct of Case so as to Postpone or Avoid Use of Catheter. D. Newman.—p. 73. To be continued.
18 Case of Mediastinal Tumor (Endothelioma) with Expansile Pulsation. W. R. Jack and J. H. Teacher.—p. 84.

16. **Action of Pituitary Solution on Surviving Human Uterus.**—Charteris' material includes nonpregnant tissue, tissue removed after early abortion, and tissue removed by cesarean section at full time. He found no essential difference in the response to pituitary solution in the pregnant and nonpregnant human tissue. Both responded promptly to pituitary solution by an increased acivity. The contractions are more numerous, the individual contraction is shorter, the relaxation is somewhat quicker, and the tonus is markedly increased. This action is very promptly produced. Within a minute of adding the pituitary solution the stimulant action is seen, and, as a rule, the stimulation lasts for several minutes (fifteen, twenty or thirty minutes). A subsequent additional dose either renews the stimulus or intensifies the action if the previous effect has not entirely passed off. In addition to pituitary solution, various other uterine tonics were tested —epinephrin, ergotin, liquid extract of ergot and quinin, but none of them produced the prompt effect of pituitary extract. Ergot was unreliable. Fresh standardized preparations were fairly active, but old preparations were inactive. Pituitary extract was, so far as possible, tested in conditions analogous to those in which it is used clinically, that is, when the uterine contractions were failing in strength or ceasing. Even in these conditions its stimulant action was well shown. When the contractions had ceased for some time, it promptly initiated regular strong contractions, and strengthened contractions which were becoming weak.

Lancet, London

March 3, 1, No. 4879

19 Indian Operation of Couching for Cataract. R. H. Elliot.—p. 325. To be concluded.
20 *Treatment of Septic Wounds with Bismuth-Iodoform-Paraffin Paste. L. G. Anderson and H. Chambers.—p. 331.
21 *Bacteriologic and Chemical Action of Bismuth-Iodoform-Paraffin Paste. H. Chambers and J. N. Goldsmith.—p. 333.
22 Clinico-Anatomic Investigation of Rapidly Fatal Case of General Paralysis Due to Acquired Syphilis. T. E. K. Stansfield and F. W. Mott.—p. 335.
23 Prevalence of Spirocheta Eurygyrata in Europeans and Natives in Gold Coast. J. W. S. Macfie.—p. 336.
24 Case of Acute Dilatation of Stomach Following Gastrojejunostomy. F. Godfrey.—p. 340.
25 *Case of Inflammation in Persistent Patent Meckel's Diverticulum Simulating Appendicitis. R. M. Glover.—p. 340.

20. **Septic Wounds Treated with Bismuth-Iodoform-Paraffin Paste.**—The paste used by Anderson and Chambers is the one first used by Rutherford Morison. Its composition is as follows: 2 ounces of iodoform, 1 ounce of bismuth subnitrate and a sufficient quantity of liquid paraffin. Any consistency may be made, but the most useful are those of soft butter and thick cream. The patient is anesthetized, all gangrenous and necrosed tissue is cut away and the wound thoroughly cleansed; it is swabbed out with alcohol, and then a small portion of the paste is vigorously rubbed into the tissues, a little being left in the bottom of the wound, which in many cases is closed with interrupted stitches and dressed with gauze wrung out in alcohol. No further dressing is required for seven to fourteen days. Observation shows that (*a*) the paste maintains a continuous antiseptic action in the wound; (*b*) it acts as a lymphagogue, and a free exudation of serum washes the wound from within outward; (*c*) it does not prevent the escape of discharge; (*d*) granulation tissue grows freely in contact with it; (*e*) drainage tubes and gauze drains are unnecessary; (*f*) septic wounds heal nearly as rapidly as noninfected ones; (*g*) bone union is rapid and the tendency to form sequestra is slight. The details of a large number of severe wounds treated with bismuth-iodoform-paraffin paste have been collected and summarized. In a total of 400, only one case of secondary hemorrhage occurred. No case of gas gangrene or tetanus has developed since this treatment was begun. One case of iodoform poisoning occurred when the treatment was first begun and when larger quantities of paste were used; it was characterized by fever, emaciation and delirium. The symptoms subsided when the treatment was discontinued. The principles which underlie this method of treatment and that of Carrel and Dakin are compared. In the latter a very powerful antiseptic agent of high solubility is employed, but the effect is so transitory that it is necessary to renew it at short intervals. This paste contains a less powerful antiseptic and one which is of feeble solubility, but which is able to keep up a continuous action in the depths of the wound without requiring to be renewed for days or even weeks.

21. **Chemical Action of Bismuth-Iodoform-Paraffin Paste.**—The bacteriologic tests were made in tubes of nutrient broth containing 20 per cent. horse serum, the test organism being a twenty-four-hour culture of *Staphylococcus pyogenes.* A preliminary test showed that the paste completely sterilized after twenty-four hours' incubation, whereas pastes of bismuth subnitrate or of iodoform with small quantities of paraffin have no appreciable action. It seems clear that the bactericidal action results from the free iodin liberated from the oxidation of iodoform by oxygen and by the nitric acid formed by the hydrolysis of bismuth subnitrate. On this hypothesis it should be possible to reduce very largely the quantity of bismuth subnitrate and still obtain bactericidal action, provided oxygen is available, but in the absence of oxygen the reaction should cease, even with the usual maximum amount of bismuth subnitrate. Both these conclusions were confirmed by in vitro experiments. Numerous cultures taken from open wounds under treatment have shown, without exception, that the wounds are not bacteriologically sterile, but there is a reduction in the number of bacteria. No change in the flora has been detected. Many wounds are infected with anaerobic organisms, and *B. perfringens,* the bacillus of malignant edema, *B. Hibler* IX., and *B. tetani* have been recovered from some of these cases. Although the organisms are present in the wounds, they are not able to proliferate freely, and the wounds heal as if surgically clean. Most of the cases under this treatment excrete to a varying extent products of the decomposition of iodoform, and the general effects of iodid absorption may have some bearing on the results.

25. **Inflammation in Persistent Patent Meckel's Diverticulum Simulating Appendicitis.**—Glover's patient presented the usual signs and symptoms of an acute suppurative appendicitis, except that localized abdominal tumidity and tenderness were situated rather higher and nearer the middle line than usual. At operation, a few hours after admission, Glover opened into a localized abscess cavity with an extension downward toward the pelvis, and fecal smelling, dark colored pus at once escaped. When the pus had been removed he observed a long tube lying free in the abscess cavity. The tube was about 7 inches long, rather thicker than an average appendix, had no mesentery, and originated from the ileum. About 1 inch from its intestinal origin it was dilated to the shape and size of a

tangerine orange. The bulbous part was gangrenous, black in color, stippled with grayish points. The intestinal ostium of the tube was about 1 inch in diameter. Distally the tube tapered away to a thin fibrous cord which disappeared backward among adhesions. It was a persistent, patent, inflamed and gangrenous Meckel's diverticulum.

Medical Journal of Australia, Sydney

February 10, I, No. 6

26 **Meningitis Associated with Gram Positive Bacilli of Diphtheroid Type.** E. Atkinson.—p. 115.
27 **Hysterectomy for Suppurating Myoma.** R. H. Marten.—p. 118.
28 **Traumatic Severance of Inferior Rectus Oculi; Suture; Recovery.** J. C. Halliday.—p. 119.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXVI, No. 2

29 **Some Experiences of Cyanocuprol against Surgical Tuberculosis.** S. Omura.—p. 9.
30 **Cyanocuprol and Tubercular Lymphadenitis.** W. Takahashi.—p. 10.
31 **Various Ways of Employing Common Salt.** K. Karasawa.—p. 10.
32 **Bacillus in Blood of Typhoid Patient.** H. Kiyooka.—p. 13.

Archives Médicales Belges, Paris

January, LXX, No. 1, pp. 1-96

33 *The Medical Profession in Two Years of War. (Après deux ans de guerre.) M. Stassen and J. Voncken.—p. 5.
34 *War Wounds of the Knee. (Les plaies articulaires du genou par projectiles de guerre.) P. Derache.—p. 11.
35 *Malaria in Flanders. (Fièvre paludéenne des Flandres. Quelques remarques sur la ponctuation basophile des hématies.) E. Renaux.—p. 24.
36 Social Medicine in England. R. Sand.—p. 34.
37 Recent Literature on War Wounds of Peripheral Nerves. R. Marchal.—p. 44.

33. **The Medical Profession in Two Years of War.**—Stassen and Voncken comment on the overwhelming disappointment when it was found that asepsis was out of the question with war wounds. The discouragement led to an era of mutilating operations to get rid of the inevitable infection. They state that Carrel, more than any one else, is responsible for having arrested this stampede retreat of discouragement before infection. He proved that it was not necessary to amputate and cut away so much tissue; there was a chance to conquer the infection without this. This audacity on the part of the surgeons has been justified by the healing even of cavities of joints under primary suture after physiologic treatment, when all other methods of treatment had disastrously failed. Even abdominal wounds are now attacked with comparative confidence; immediate rational intervention is now the rule. The question as to the best means of managing skull wounds has not been decided as yet; the grave future of those wounded in the skull still induces hesitation as to operative intervention. Time has not yet given its decisive answer as to whether suture to prevent hernia of the brain is wise or not. Other questions which have been studied and solved in large measure are the recrudescence of malaria, icterohemorrhagic spirochetosis, trench foot, shell shock and minute hemorrhages from air concussion, the morbid consequences of fatigue and, particularly, the connection between fatigue and insufficiency of the suprarenals—all these have been studied in detail and on such large numbers of cases that decisive conclusions have been drawn. In addition to all this scientific work, the physician in close touch with the troops at the front has played the comforter, the encourager and confidant. In short, they remark in conclusion, the two years of war in Belgium have shown that the medical profession is equal to its task and is supreme in these days of the reign of suffering and death.

34. **War Wounds of the Knees.**—Derache declares that a war wound of the knee is not inevitably doomed to suppurate. If given a thorough surgical cleansing, it can be left to heal under its own natural defensive powers. If the bone has not been shattered, rubber drains should not be used, but the joint should be opened up widely and rinsed out, suturing after this the synovialis and the capsule. Early exercise of the joint from the very first few days aids materially in restoring function. A number of typical cases are reported to show the preferable technic for the different kinds of gunshot and shell wounds. Depage has recently published some statistics showing recovery with restoration of function in 24.1 per cent. of twenty-nine cases treated by drainage as was considered necessary at first. During the period after this, Carrel's method of treating wounds was strictly applied and complete recovery with restitution of function was obtained in 46.87 per cent. of thirty-two cases. Since then it has been his practice to suture the wound at once, even if the bone has been injured. After careful surgical cleansing of the region, extraction of projectiles and profuse rinsing out of the joint with Dakin's solution or ether, the bones scraped with the curet or gouge, the joint is then sutured in several tiers, leaving a small rubber drain in contact with the injured bone for twenty-four hours, and immobilizing. Of the twenty-two wounds thus treated complete recovery with restoration of function was realized in 86.36 per cent. The difference in the proportions of suppurations in these three periods is shown by the figures: 68.8, 28.12 and 4.54 per cent. The number of cases of ankylosis was respectively: 37.93, 18.75 and 13.63 per cent., while the amputations required were respectively 34.4, 15.62 and 0, and none of the patients died in the later period.

35. **Malaria in Flanders.**—Renaux remarks that although acute malaria has long had only historical interest in Belgium, yet malaria has never died out completely there. A few chronic cases have been encountered from time to time in the last few decades. But the wartime conditions, the flooding of the country as a protection against the enemy, and defective hygienic measures have led to the flaring up anew of the old embers of malaria, and he has been able to identify nineteen cases in the Bourbourg and Gravelines hospitals. Malaria had not been suspected at first, and the cases had been labeled pneumonia, grip, febrile gastric disturbance, etc. None of those affected had ever been in tropical countries. The lack of any regularity in the recurrence of the fever aided in the overlooking of the true cause of the disturbances. Even when there was a regular rhythm in the fever, it varied from daily to tertian and vice versa. Under quinin the men rapidly recovered, and only two have returned with a recurrence since. The parasites were of different sizes and seemed to represent a type midway between the quartan and the benign tertian. They take the usual stains a little abnormally. He noted in the blood of these patients numerous basophil punctated red corpuscles, such as are considered typical of anemia and lead poisoning.

Bulletin de l'Académie de Médecine, Paris

February 6, LXXVII, No. 6, pp. 161-180

38 *Adhesive Posterior Pericarditis. (Recherches et remarques sur le péricarde postéro-supérieur.) E. Delorme.—p. 162.
39 Subperitoneal Extraction of Paravertebral Projectiles. S. Mercadé.—p. 170.
40 The Electric Reactions with Local Hypothermia. H. Bordier.—p. 172.
41 *Uremia and the Internal Secretions. A. Rémond and Minvielle.—p. 174.
42 Movable Artificial Stump for Artificial Eye in Case of Enucleation from War Wounds. (Moignon mobile artificiel pour prothèse oculaire applicable dans presque tous les cas d'énucléation forcée.) A. Magitot.—p. 177.

February 13, No. 7, pp. 181-216

43 Mixing Cornmeal with Flour in Bread Making. (Sur l'addition de la farine de maïs à la farine de blé.) D. Berthelot.—p. 207.
44 *Resuscitation by Stimulation of the Accelerators of Heart Arrested in Diastole. J. P. Morat and M. Petzetakis.—p. 208.
45 *Medical Surveillance of Prostitution at Paris During the War. L. Butte.—p. 210.
46 Roentgenoscopic Localization of Projectiles. E. Albert-Weil.—p. 212.

38. **Posterior Pericarditis with Adhesions.**—Delorme refers to the inflammation localized around the mouth of the aorta and the right trunk of the bifurcated pulmonary artery. He analyzes the anatomic conditions here, and the best modes of access and exploration with a projectile in the region.

41. **Uremia and Internal Secretions.**—Rémond and Minvielle report here experiments on rabbits undertaken to detect any possible protecting action from thyroid extract, suprarenal extract, parathyroid or kidney extracts in combating uremic intoxication. All displayed a more or less favorable action except kidney extract which seemed to aggravate conditions.

44. **Restoration of Arrested Heart Action by Stimulation of the Accelerators.**—Morat and Petzetakis found that stimulation of the accelerators, or even of one of them, with a moderate electric current may suffice to start the heart to beating anew when it has stopped in diastole under chloroform. First the right auricle and then the left auricle begin to contract, while the ventricle keeps in diastole. Then suddenly the ventricle starts its movements. The auricular contractions are faint at first. This phenomenon has been studied particularly on animals chilled to 23 or 17 C. The arrest of the heart action may last for five minutes or more; then stimulation of the accelerators, after a latent period of five or ten seconds, starts up the movements of the heart, even when the thorax is opened and artificial respiration has been suspended. The heart continued to beat for a time but then stopped finally. It could be started up again if the accelerators were stimulated anew within a minute or so. The heart movements were recorded by electrocardiography.

45. **Medical Surveillance of Prostitutes at Paris During the War.**—Butte is physician in chief of the municipal *Dispensaire de Salubrité* which has surveillance of prostitutes as its main task. Notwithstanding the difficulties from the scarcity of physicians left in Paris, strict oversight over venereal diseases in prostitutes has been maintained. During the first month of the war, 207 prostitutes were sent to the special infirmary to have venereal diseases treated; the preceding month 128 had been sent to the infirmary. From the beginning of the war to the end of 1916 the dispensary has a record of 205,643 medical inspections of prostitutes made by physicians, and they thus were able to detect 4,849 cases of venereal disease, including 970 cases of syphilis. Analysis of these figures shows that the number of prostitutes in brothels has kept about the same; 23,083 medical inspections were made, and only five cases of venereal disease discovered among them, including one of syphilis. This good record of the brothels he ascribes to the fact that they are forbidden to admit minors. This simple measure, he insists, should be generalized everywhere, as minors constitute a special danger in brothels elsewhere. The registered prostitutes living alone (5,893 Jan. 1, 1915; 3,538 Jan. 1, 1916), have had medical inspection 63,812 times for those who come regularly to the dispensary to be examined, and 108,989 times for those arrested for lack of a medical certificate or for other infractions of the police regulations. Among these women, 2,189 cases of venereal disease were discovered, including 508 of syphilis. This is a larger proportion than is the rule in times of peace, and the vigilance of the dispensary has made it possible to keep this large number of infected women from infecting others during their contagious period. The great danger is from nonregistered prostitutes, the numbers of whom have materially increased since the war. They include refugees, married women and munitions workers, and the dispensary has kept special oversight over such. In 9,759 medical inspections, 2,655 cases of venereal disease were discovered, including 462 of syphilis. This is double the proportion of peace times, and emphasizes anew the importance of keeping medical surveillance over clandestine prostitution. Special measures have been taken for prostitutes still under age. Since the war began these girls are arrested, brought to the dispensary, and if they are found to be suffering from venereal disease they are sent to the Saint-Lazare Hospital. When discharged as cured they are returned to their families or taken to the juvenile court which sends them to a reform institution. Here the girls are detained until their majority, under conditions rendering it impossible for them to disseminate venereal disease. Butte adds that on account of lack of appropriations it has been impossible to apply the much desired measure of keeping syphilitic prostitutes under treatment at the dispensary during the latent phase of syphilis. Until appropriations can be obtained for this purpose, syphilis continues its ravages. The army authorities detailed a couple of physicians to aid in the medical inspections afternoons, which has much facilitated the heavy work of the dispensary. It is handicapped by the calling to the colors of the assistants, and by its defective installation and organization and by the inadequate appropriations.

Journal de Médecine de Bordeaux

February, LXXXVIII, No. 2, pp. 23-40

47 *Pseudo Tuberculosis of the Lungs. J. Carles.—p. 23.
48 The Milk Supply and Dairy Hygiene. (Le lait et la puériculture.) L. Barthe.—p. 24.
49 War Wounds of Skull, Thorax, Abdomen and Spinal Cord. (Notes sur la chirurgie à l'avant. II.) Charbonnel.—p. 26.
50 Scarlatiniform Exanthem with Septicemia. Creyx.—p. 30.
51 Waste of Alcohol in Sterilizing the Hands. L. Barthe.—p. 34.

47. **False Pulmonary Tuberculosis.**—Carles refers to patients who cough and present all the signs of active tuberculosis, and yet the trouble is merely the spread downward of some chronic trouble in the nose. Sinusitis, rhinitis, adenoids, the tonsils, may be responsible. On the side on which the patient usually lies, the lung shows signs of involvement, especially at the hilus, and the diagnosis of tuberculosis seems certain. The sputum shows no tubercle bacilli and treatment of the nose, sinus or tonsils is soon followed by the retrogression of the lung symptoms, or a focus of sclerosis may persist indefinitely. True tuberculosis may become installed if the primary condition is allowed to go untreated. Carles has encountered several cases in the last year or two in which typhoid or paratyphoid bacilli kept up a chronic congestion in the lungs simulating tuberculosis. In a recent case a simple congestion of the apex during a typical paratyphoid fever, dragging through several weeks, presented the clinical picture of "galloping consumption." All returned to normal as the paratyphoid ran out its course. In another case of supposed pulmonary tuberculosis with hemoptysis and softening of the apex on both sides, the sputum has shown only pneumococci in the year or more the patient has been under observation. In these pneumococcus cases, inhalation treatment and tonics generally cured the patients completely in time.

Lyon Médical

January, CXXVI, No. 1, pp. 1-60

52 Compass for Locating Projectiles. C. Herveux.—p. 1.

February, No. 2, pp. 61-108

53 Acute Yellow Atrophy of the Liver in Young Woman Working on Munitions. (Ictère grave attribué à la mélinite.) R. Pauly. —p. 61.
54 *Preventive Treatment of Inherited Syphilis with Salvarsan and Arsenobenzol Courses for Pregnant Women. M. Cons.—p. 63. Commenced in No. 1, p. 14.
55 Magnet to Aid in Extraction of Foreign Bodies in Air Passages, etc. (Quelques applications nouvelles des électro-aimants à courant continu ou à courant alternatif.) L. Léorat.—p. 72.
56 The Bacillus Serpens in Pulmonary Infections. A. Mary.—p. 77.

54. **Antisyphilitic Treatment of Pregnant Women.**—Cons relates that of five pregnant women with unsuspected syphilis, only two bore viable children and one of these soon died. The other woman had been given a dose of salvarsan twelve days before delivery and this child left the hospital apparently in good condition. Fourteen other pregnant women, mostly in the second stage of their syphilis, were given specific treatment during the pregnancy and all bore viable children. One child died a month later from a congenital heart defect; the others are all apparently in perfect health.

Paris Médical

February 10, VII, No. 6, pp. 121-136

57 Correction of Ankylosis of the Jaws from War Wounds. (Constriction des machoires par blessures de guerre.) L. Imbert and P. Réal.—p. 122.
58 Taking the Blood Pressure with Potain Manometer. (Comment le praticien doit prendre la tension artérielle.) L. Tixier.—p. 128.
59 Roentgenoscopic Localization of Projectile. J. Davalle.—p. 132.
60 *Simultaneous Measurement of Both Halves of the Chest. (Ruban métrique pour la mensuration simultanée des deux hémithorax.) Perrin.—p. 135.

February 17, No. 7, pp. 137-152

61 *The Abdominocardiac Reflex. (Essai sur l'un des facteurs de l'accélération cardiaque orthostatique.) Prével.—p. 138.
62 Device for Overcorrection of Paralysis in Vicious Attitude. (Prothèse musculaire fonctionnelle.) J. Privat and J. Belot.—p. 143.
63 *Vaccination against Typhoid Does Not Affect the Retina. (Les oculaires devant la vaccination antityphoidique.) E. Ginestous. —p. 150.

60. **Measurement of the Chest.**—Perrin slits an ordinary measuring tape lengthwise and fastens the two zero points together. When this is held in the middle of the spine and the other ends crossed in front, any difference in the size of the halves of the chest becomes evident at once.

61. **The Abdominocardiac Reflex.**—Prével applies this term to the mechanism causing the acceleration of the pulse on changing from the reclining to the upright position. The contents of the abdomen slide down and this induces by reflex action an acceleration of the pulse as the gastric ramifications of the pneumogastric are stretched. The mechanism is somewhat similar to the oculocardiac reflex. He gives a number of tracings to sustain this view, showing how supporting the stomach during the change from the horizontal to the erect position may arrest the reflex. He also lists the pulse findings in twenty persons under different conditions of rest, work and position.

63. **Vaccination Against Typhoid Does Not Affect the Eyes.**—Some cases of herpes of the cornea, oculomotor paralysis and retinal lesions, developing after vaccination against typhoid, have caused concern for fear the vaccination might be responsible for them. But closer analysis of the cases has always proved them to be merely casual coincidences, so that Ginestous reiterates that, outside of ocular lesions which are in themselves the manifestation or complication of some constitutional disease, there are no contraindications on the part of the eye to antityphoid vaccination.

Presse Médicale, Paris

January 25, XXV, No. 6, pp. 57-64

64 Forms of Chronic Tuberculosis of the Kidney. N. Hallé.—p. 57.
65 Sterilized Human Skull Flap to Close Defect in Skull. J. A. Sicard and C. Dambrin.—p. 60.
66 *Quantitative Test for Calcium in the Urine. C. Mayer.—p. 61.

66. **Quantitative Test for Calcium in the Urine.**—Mayer has worked out a rapid technic for this purpose which does not require a laboratory equipment and yet, he says, it is as reliable as the old tedious laboratory methods. He boils 200 c.c. of urine with enough ammonium carbonate to have all the lime and magnesia precipitated out in the form of carbonates and phosphates. Then he dissolves these with hydrochloric acid and precipitates with oxalic acid. The calcium oxalate is filtered out, and the amount of oxalic acid left unprecipitated is determined with potassium permanganate. No weighing is required, and several samples of urine can be thus tested in the course of an hour.

It takes about ten minutes to precipitate all the calcium and magnesium in the 200 c.c. of urine, boiling it with enough ammonium carbonate to answer the purpose. The precipitate is left a few instants to settle and then the supernatant fluid and then the precipitate are poured out on the filter, first boiling up the precipitate several times with water containing a little ammonia. The funnel is then placed over a flask gaged for 100 c.c., and a boiling 10 per cent. solution of hydrochloric acid is then poured over the filter. This dissolves the calcium and magnesium carbonates and phosphates. The filter is rinsed with a little boiling water. The fluid assembled in the gaged vessel is boiled a few minutes to expel the carbon dioxid. All the calcium and magnesium are now in the form of chlorids. This solution is neutralized with ammonia until a slight tendency to precipitation becomes manifest; this is counteracted with a few drops of acetic acid. Then he adds 30 c.c. of a decinormal solution of oxalic acid (that is, containing 6.3 gm. of crystallized oxalic acid to the liter), and the vessel is filled up to 100 c.c. In case of very large calcium content, more oxalic acid is required; 50 c.c. is certain to be enough. After thorough mixing, the fluid is left to settle in the graduated vessel. When the precipitate of calcium oxalate has all been thrown down, the clear fluid above is poured on the filter. In 50 c.c. of this filtrate, the amount of the oxalic acid not precipitated by a decinormal solution of potassium permanganate corresponds exactly, cubic centimeter to cubic centimeter, to the titrated solution of oxalic acid. If n equals the number of cubic centimeters of the permanganate used, then the number of cubic centimeters of the solution of oxalic acid having served to precipitate the calcium is $30 - 2n$. If to 1,000 c.c. of the oxalic acid solution correspond 2.8 gm. of calcium, then to $(30 - 2n)$ cubic centimeters will correspond

$$\frac{2.8 \times (30 - 2n)}{1{,}000} \text{ of calcium.}$$

For 1 liter of urine this figure would have to be multiplied by 5:

$$\frac{2.8 \times 5 \times (30 - 2n)}{1{,}000} = 0.014 \times (30 - 2n)$$

For practical use it is enough to use the last formula alone, substituting A for the number of cubic centimeters of the oxalic acid solution:

$$0.014 \times (A - 2n).$$

Progrès Médical, Paris

January 27, XXXII, No. 4, pp. 29-36

67 Association of Sulphur with Mercury in Treatment of Syphilis. M. Loeper, A. Bergeron and K. Vahram.—p. 29.
68 *Encircling with Wire for Contention of Scraps of Shattered Long Bone. (Cerclage au fil métallique dans le traitement des éclatements des os longs par projectiles de guerre.) M. Sénéchal. —p. 31.

68. **Encircling a Shattered Long Bone with Wire.**—Several illustrations show the utility and fine outcome of simply passing a wire around the long bone shattered by a projectile.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 27, XLVII, No. 4, pp. 97-128

69 *Skin and Venereal Diseases in Swiss Army. (Die dermatolog.-veneralog. Abteilung der Etappen-Sanitäts-Anstalt Solothurn.) H. Merz.—p. 97.
70 Substitute for Sugar in Infant Feeding. (Nutromalt, ein Ersatzpräparat des Nährzuckers.) A. Hotz.—p. 107.

February 3, No. 5, pp. 129-160

71 War Neuroses. (Im Nervenlazarett.) E. Sigg.—p. 129.
72 *Occupational Diseases and Industrial Poisoning. (Gewerbevergiftungen und Berufskrankheiten.) D. Pometta.—p. 147.

69. **Skin and Venereal Diseases in Swiss Army.**—Merz reviews the experiences at the special service for these affections at the Solothurn base hospital. There has been only a slight increase in the proportion of venereal diseases during the war, although Switzerland is surrounded on all sides by belligerents among whom venereal diseases are making havoc. There is reason to assume that the opportunities for infection will soon become more numerous in Switzerland, and he urges the necessity for strict regulation and medical oversight of prostitutes. Not only professionals, but every source of infection should be sifted out and made harmless. For this he advises compulsory treatment in a special clinic or private medical care under strict guarantees that treatment will be thorough. The men should be enlightened as to the dangers of every extraconjugal intercourse. He adds that the ignorance and indifference in this respect of large numbers of the men are almost incredible. They think that red cheeks and sound teeth guarantee them against infection. He deplores that the enlightenment was not made years ago. Practically nothing has been done in this line in Switzerland to date, he says. Partly from lack of initiative and partly from false modesty, no attempts at sexual enlightenment have been made, but no time should be lost now. Moral admonitions alone do not suffice.

72. **Industrial Diseases.**—Pometta is the chief medical officer of a Swiss accident insurance company and he here reviews the new legislation on workingmen's compensation for accidents and affections acquired at work. The Swiss legislature has recently made out a list of chemicals, etc., which expose to particular dangers in the industries, and has modified the law so that the affection in question need not be due exclusively, but only predominantly, to the toxic substance involved. Pometta adds that it is a difficult matter to estimate correctly all the phenomena entailed by a severe occupational intoxication. But every physician should be able to suspect industrial poisoning, and direct his examination accordingly. The new Swiss state insurance organization has begun to compile statistical and casuistic material on the subject. It is better equipped for this purpose than other states, as it provides for direct treatment, from the very first, instead of waiting for thirteen days as in Germany and other countries where social insurance is in vogue. As the compensation is paid in form of a pension, it will be possible to keep the injured workman under surveillance, and thus get the complete record of each.

Pometta cites authorities who emphasize, to begin with, that there is scarcely any sickness from industrial poisons that

cannot develop, with about the same symptoms, from some entirely different cause. He mentions, as instances, the resemblance between certain forms of arsenic poisoning and cholera, between toxic and other nephritis, between nervous affections of toxic and primary nature, and between stomach irritation from an alkali salt and chronic gastritis. The patient's statements are of no aid; often he has no suspicion of having been injured by anything about his work; the poison may have been disguised under some fancy name. Or the man may conceal his suspicions, not wishing to lose his job, or he may conceal other affections. The physician may have to contend with simulation, the man reproducing the symptoms he had watched in some mate, particularly as so many of the phenomena with intoxications are subjective. He warns further that idiosyncrasy is often an important factor in intoxications, and the physician should strive to detect the idiosyncrasy early, and get the man out from under this special noxious influence. The idiosyncrasy may be acquired. Certain chemicals, like certain diseases, increase the susceptibility, while others confer a kind of immunity. Autointoxication may also enhance the intensity of an industrial poisoning. This is especially true of alcohol; even a small amount may open the gates to the industrial poison. This is well known among manufacturers. In certain factories in the manipulation of certain chemicals known to have a special affinity for alcohol, only workmen known to be total abstainers are employed. In conclusion he remarks that the deepening of the diagnosis in the direction of etiology is not only becoming more and more important from the medical-biologic point of view, but it is demanded by the legislation of the day. The state requires it and has to rely on physicians for this.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 25, XXXVIII, No. 7, pp. 97-112

73 *Determination of Acetone Bodies in the Urine. (Nuovo metodo rapido di riconoscimento dei corpi acetonici dell'orina.) E. U. Fittipaldi.—p. 99.

January 28, No. 8, pp. 113-128

74 Paralysis of Left Recurrent Nerve from War Wound of Chest. N. Samaja.—p. 113.

February 1, No. 9, pp. 129-144

75 Hemolytic Jaundice Consecutive to Destruction of Lung Tissue from War Wounds; Two Cases. C. Oliva.—p. 129.

76 Immobilization of Fractured Clavicle by Fastening Hand on Opposite Shoulder. G. Onano.—p. 133.

73. Improved Nitroprussid Test for Acetone Bodies in the Urine.—Fittipaldi describes a modification of the usual tests for acetone in the urine which, he says, elicits an exclusively specific acetone reaction. It also shows up the diacetic acid, while the technic is simple, takes little time, the color reaction is durable, and the test is as sensitive as any of the current technics in vogue. He adds about 0.02 gm. of finely pulverized sodium nitroprussid to 4 or 5 c.c. of urine in a 12 c.c. test tube. They are mixed until the salt is entirely dissolved, and then he superposes on the urine, pouring it along the wall of the tube, 1 c.c. of ammonia and the whole is left untouched for fifteen minutes. There is then a colored zone between the two fluids. If this zone is yellow to chestnut color, the acetone content is within normal range. If the zone is of a more or less deep chestnut color, there are traces of acetone, but no diaceturia. If the zone is violet, there is considerable acidosis. In this case he mixes the fluid and adds acetic acid by the drop until the fluid is slightly acid. If the reddish purple tint throughout the whole disappears as the acid is added, we can be sure that there is more or less pronounced acetonuria, but without diaceturia. On the other hand, if the purple blends into a durable ruby red, there is diaceturia and probably also pronounced acetonuria in addition.

Policlinico, Rome

February 4, XXIV, No. 6, pp. 165-200

77 Treatment of War Wounds of the Skull. (La cura delle ferite craniche di guerra.) T. Pontano.—p. 165.

78 *Test for Sugar in the Urine. A. Angiolani.—p. 173.

79 Italian Precursor of Intratracheal Insufflation, 1703. (L'insufflazione intratracheala detta di Auer-Meltzer e di Baglivi.) G. Bilancioni.—p. 182.

80 *Treatment of Pleurisy with Effusion in Country Practice. M. Canali.—p. 187.

81 What the General Practitioner Should Know of Treatment of Ear, Nose and Throat. (Sul diritto alla ignoranza in fatto di otorino-laringologia.) G. Bilancioni.—p. 194.

78. Estimation of Proportion of Sugar in the Urine.—Angiolani gives some tables and describes a set of test tubes with various strengths of the Fehling reagent. On comparison with these it is easy to compute from the table the sugar content of the urine under examination.

80. Treatment of Pleurisy with Effusion.—Canali states that in his experience as a village physician he has treated about a hundred patients for pleurisy with effusion by evacuating up to 3 liters at a time and has had no mishaps from it in eighteen years, while benefit was marked in every case. He never attempts to introduce air, but sometimes reinjects subcutaneously 10 c.c. of the effusion. His patients all recovered promptly, and he does not know the extent to which this autoserotherapy cooperated in the cure as a rule. In a recent case, however, he is convinced that this was the main factor in the prompt recovery. Immediately after subcutaneous evacuation of 2 liters of fluid and reinjection of 15 c.c., the fever subsided, copious diuresis followed and sweating, with prompt and complete recovery. A previous thoracentesis, six days before, without the autoserotherapy, had been followed by immediate reproduction of the fluid. In other cases the temperature dropped by a crisis after evacuation of 2 liters of fluid plus the autoserotherapy. Canali commends this method in particular to country practitioners.

Riforma Medica, Naples

1916, XXXII, No. 50, pp. 1369-1396

82 Mirror Writing. (Sulla scrittura a specchio.) L. Siciliano.—p. 1380.

No. 51, pp. 1397-1424

83 Contracture of Joints from Peripheral Trauma. (Mioipertonie degli arti per traumi periferici.) G. Rummo and F. Ferrannini. —p. 1397. Conclusion.

84 Reaction Suggesting Anaphylaxis under Antitetanus Serum. G. Marsiglia.—p. 1404.

85 *Importance of the Vasomotor System in Injury from Freezing. (L'importanza del sistema vaso-motorio nella genesi del congelamento.) V. Neri.—p. 1406.

85. Vasomotor Predisposition to Freezing Injuries.—Neri shows that a vasomotor predisposition plays an important part in frostbite. His research suggests further that thyroid treatment might aid in prevention and also in treatment in the earliest stages. His work further confirms that a part once exposed to freezing is peculiarly predisposed for it to occur again.

Brazil-Medico, Rio de Janeiro

February 3, XXXI, No. 5, pp. 35-42

86 Nematode Parasites of Rodents. (Nematodeos parasitos de roedores.) L. Travassos.—p. 35.

87 *Beriberi or Beriberic Syndrome? C. Fraga.—p. 35. Conclusion. Commenced in No. 2, p. 9.

88 Heliotherapy in Brazil. A. Moncorvo Jr.—p. 37. To be continued.

87. Beriberi in Brazil.—Fraga remarks that there has been considerable confusion in Brazil as to the incidence of beriberi. Chagas recently demonstrated that cases of supposed beriberi in the Amazon region were merely instances of polyneuritis in persons with chronic malaria. Chagas admits that beriberi can occur in the Amazon district, but the cases he happened to encounter were all of this malarial type. Fraga states that beriberi seems to be endemic in his region, the Bahia district, but it is rare. In five recent years at the medical clinic in his charge 513 cases of intestinal helminths, or polyverminosis, as he calls it, were encountered, but only 5 cases of beriberi. The hospital at Bahia has recorded 914 cases in the last fifty years, averaging about 18 a year. The range was from 3 cases in 1869 to 42 in 1910. At the penitentiary, there have been 287 cases during these fifty years, but this included an epidemic of 112 cases in 1908 with mortality of 62. Since 1908 there have been only 18 cases with 8 deaths. In the Bahia insane asylum nearly all the inmates were affected in 1914, and only 66 were living of the 136 at the commencement of the year. The inmates were then transferred to more hygienic quarters, and all recovered. No new cases developed until 1914, when there was an epidemic of

30 cases with 16 deaths; in 1915, 15 cases with 4 deaths, and in 1916, 18 cases with 8 deaths. An epidemic of beriberi also broke out among the troops at a certain barracks in 1878 and 1880, but was stamped out by change of quarters. The epidemics of beriberi at Bahia have occurred exclusively in institutions. The evolution of the disease is more rapid in the dropsical type and slower in the paralytic, but a combination of both types is the rule at Bahia. The course is usually from one to six months but the frequent relapses may render it difficult to estimate the actual course. The multiplicity in the clinical forms, the variety in the manifestations and the gravity of the symptoms on the part of the vegetative nervous system, render differentiation and prognosis often difficult. The apparently most serious cases may recover as if by magic while the mildest cases may take a sudden fatal turn. It is evident, Fraga remarks in conclusion, that it is a disease of a certain geographical distribution, a conjunction of phenomena developing under the influence of the same cause.

Cronica Medica, Lima

January, XXXIV, No. 643, pp. 1-40

89 Morphin plus Atropin plus Pituitary Solution for Painless Labor. (Contribucion a la analgesia obstetrica por el estudio clinico de la formula No. 3 del Dr. B. J. S. Artola de Lima.) M. H. Vallenas.—p. 1.
90 Present Status of Tabes. E. Odriozola.—p. 20.
91 Errors and Dangers for Demography and the Medical Sciences of the Bertillon Method of Classifying Diseases. R. P. Sauri. —p. 25.

Semana Medica, Buenos Aires

1916, XXIII, No. 52, pp. 667-700

92 Vaccine Therapy. (La terapeutica esencial.) N. S. Loizaga.—p. 667.
93 *The Oculocardiac Reflex in the Insane. (El reflejo oculo-cardiaco en 721 enfermos mentales.) F. Gorriti.—p. 671.
94 *The Diet in the Tropics. J. G. Ruiz.—p. 674.
95 Subcutaneous Injections of Oxygen. A. Cetrangolo.—p. 678.
96 Case of Cutaneous Sporotrichosis. E. Accame.—p. 680.

93. **The Oculocardiac Reflex in the Insane.**—Gorriti mentions that Vernet and Petzetakis noticed that potassium bromid usually reduces the intensity of the oculocardiac reflex, and Gorriti found that a similar effect was evident when a few drops of a 10 per cent. solution of cocain were instilled into the eyes. Among the 721 insane inmates of the national asylum tested for the oculocardiac reflex, 2 had transient syncope for a few seconds, the patients falling to the ground as if suddenly stricken. These were among the 70 to whom the test was applied standing. Nothing of the kind was ever noticed in the hundreds to whom the test was applied while reclining. The reflex occurred as in normal conditions in 589; the reflex was inverted in 74, and there was no reflex action in 56. The response was more pronounced when the subject was erect. The whole series is tabulated according to the mental affection, but no connection with any special affections was evident. The response was normal in the 4 epileptics, 7 imbeciles, in a number of alcoholics, in cases of acute and chronic melancholia, and in cyclic insanity. In 20 cases of dementia praecox it was normal in 175, inverted in 16, and there was no response in 16. In 24 cases of vesanic dementia it was normal in 20, inverted in 3 and one gave no response. In 40 cases of delirium with delusions of persecution the reflex was normal in 34, inverted in 2 and absent in 4. Gorriti warns that the sex, age, height, interval since eating and character of the meal, the hour of the day, the position, and emotions are all liable to affect the response to the test. He cites Roubinovitch's report of examination of 200 insane for the oculocardiac reaction. His conclusion was that the absence of the reflex is a sign of an organic lesion, possibly inherited or acquired syphilis. In Gorriti's series the only patients giving absolutely no response were the above mentioned 16 with dementia praecox, 11 with subacute alcoholism with delusions of persecution, 2 with the same plus signs of degeneracy, 2 with the confusional type of insanity of alcoholic origin, one chronic alcohol addict with delusions of persecution, 3 with alcoholic melancholia, 3 with alcoholic mania, 1 with vesanic and 2 with senile dementia, 4 degenerates with melancholia, 2 with the latter plus maniacal excitement, 1 idiot, one paranoiac, 1 epileptic idiot, 4 with delirium and delusions of persecution and one with religious mania. In the whole series there was no type of mental disease giving exclusively negative findings.

94. **The Diet in the Tropics.**—Ruiz is chief of the department of food hygiene in the national public health service of Argentina. He emphasizes that a laboring man in a tropical country does not need as much by 500 calories as in the temperate zone. His food should be rich in carbohydrates, scanty in fat, and moderate in proteins. It would be better, he asserts, if laborers on the ranches and in the forests were paid partly in food supplies instead of in cash, so that they would be sure of nourishing food instead of wasting their wages on liquor and improper food. These laborers at present have no idea of thrift and hygiene, and the state should make laws to insure their getting proper food.

Siglo Medico, Madrid

January 27, LXIV, No. 3294, pp. 49-64

97 *Oxaluria. T. Hernando.—p. 50.
98 Treatment before Diagnosis is Complete. (El tratamiento de las enfermedades desconocidas y la terapeutica sintomatica.) R. R. Villanova.—p. 60. Concluded in No. 3295, p. 74.

February 3, No. 3295, pp. 65-80

99 Spanish Literature on Parasitology. P. L. Marcos.—p. 67.
100 Asystoly. F. G. Aguilar.—p. 71.

97. **Oxaluria.**—Hernando has found oxalate crystals in the stools of patients with mucous colitis or gouty-rheumatic trouble. He thinks that oxalic acid may play a part in the joint troubles of gout, and in any event that it is better to prevent the accumulation of oxalic acid in large amounts in the tissues. Vegetables and fruit rich in oxalic acid should be avoided or else they should be boiled and the water thrown away. Meat containing much nuclear substance or gelatin and other food that aids in production of oxalic acid should also be avoided. Rice, potatoes and bread contain magnesia and are useful. A tendency to hyperchlorhydria should be combated as this favors absorption of oxalic acid. In De Sandro's case, the oxaluria stopped as soon as starchy foods were avoided. In treatment, calcium salts after meals favor the production of the insoluble calcium oxalate which prevents absorption of the oxalic acid. Magnesium salts neutralize the gastric acidity and impede precipitation of the oxalic acid in the urine. Sodium and magnesium citrate also promote the solution and elimination of oxalic acid. Maguire has also called attention to sodium acid phosphate as a solvent for oxalate concretions.

Russkiy Vrach, Petrograd

1916, XV, No. 49, pp. 1153-1176

101 *Major Operations Close to the Firing Line. V. A. Oppel—p. 1153.
102 *Sugar Exalts Virulence of Germ of Gas Gangrene. (Ob aggressivnosti glucosi. Sluchai gazovoi gangreni.) A. A. Bogomoletz.—p. 1163.
103 Management of War Wounds of the Vessels and Traumatic Aneurysms. N. A. Dobrovolskaya.—p. 1165. Continuation.

101. **Surgery at the Front.**—Oppel pleads for having the most competent surgeons and surgical consultants close to the firing line so that major operations can be done at once as needed. This presupposes of course proper surgical equipment and provisions for caring for the men on the spot afterward. The less reliance that is placed on transportation and on surgical measures later, at the base hospital, the better. He mentions in the report of his experiences at the front since the beginning of the war, that he had never seen or heard of a case of gas gangrene developing in a skull wound. The conditions as to circulation and the consistency of the tissues evidently do not favor gas gangrene.

102. **Sugar Enhances Virulence of Germ of Gas Gangrene.**—Bogomoletz cultivated anaerobically a germ from a case of gas gangrene which responded to all the tests characteristic of Fraenkel's *Bacillus emphyscmatosus.* It did not seem to be pathogenic for rabbits unless sugar was injected along with the culture. When this was done, the animals all developed typical and speedily fatal gas gangrene. Injecting 1 c.c. of a bouillon culture on the right and left side of a rabbit, one with addition of 0.2 gm. sugar and the other without, showed absolutely no reaction on the latter side while typical necrotic gas gangrene developed on the sugar side.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 20, I, No. 3, pp. 133-200

104 *Test for Motor Functioning of the Stomach. (Is de rest-bepaling volgens Mathieu en Rémond betrouwbaar?) J. W. T. Lichtenbelt and E. H. Jannink.—p. 142.

105 *Research on the Physiology of the Sense of Taste. (Smaakgewaarwordingen, waarop door andere, specifiek ongelijke smaakgewaarwordingen invloed wordt uitgeoefend.) J. H. Kremer.—p. 149.

106 *Intravenous Magnesium Sulphate Treatment of Tetanus. C. A. Cammaert.—p. 158.

107 Incarcerated Hernia in a Diabetic. W. F. Gnirrep.—p. 162.

104. **Estimation of Motor Functioning of the Stomach by Mathieu's Method.**—This communication from Talma's clinic at Utrecht reports personal experiences with Mathieu's method and summarizes the published reports of others' experience. The consensus of opinion is all in favor of the reliability of the Mathieu technic, not only theoretically but practically. The findings can be accepted with confidence. Mathieu's familiar method is to aspirate part of the stomach content and record its acidity. Then a given amount of fluid is poured into the stomach and is withdrawn again, and the acidity of this diluted remainder is determined likewise. By comparing the findings, the original quantity of chyme in the stomach can be estimated. When this technic is applied after a bouillon test meal, and then 500 c.c. of water are used for the afterrinsing, to ensure rinsing out the pylorus region, the findings can be relied on. If more than 500 c.c. water is used, it is liable to be passed on into the bowel. The test is usually made with 200 c.c. of water and this is not enough.

105. **The Sense of Taste.**—Kremer discusses the mechanism of the sensation of taste, and the influence on the perception of the taste of one article by other, specifically unlike articles. He discusses further the sense of taste as modified by some preceding application. The work issues from the Physiologic Institute at Amsterdam.

106. **Magnesium Sulphate in Tetany.**—Cammaert injected intravenously 50 c.c. of a 10 per cent. solution twice a day in a case of tetanus in a young man. The symptoms of tetanus had developed about five days after a rusty nail had pierced one of his toes. There were no further general spasms after the first injection of the magnesium sulphate, and all the symptoms gradually subsided to complete recovery by the end of the second week. The drug was so strikingly effectual in this case that Cammaert suggests that it might prove useful also in eclampsia, in uremic convulsions, and for children with convulsions from whooping cough or other cause.

Norsk Magazin for Lægevidenskaben, Christiania

February, LXXVIII, No. 2, pp. 145-280

108 *Cancer of Various Organs at Different Ages. (Statistik over kræft. Kræft i ung alder.) F. Harbitz and E. Platou.—p. 145.

109 *Paroxysmal Hemoglobinuria. C. Johannessen.—p. 179.

110 Intraperitoneal Rupture of the Bladder. O. Borgen.—p. 214.

111 *Complications of Gastro-Enterostomy. S. Widerøe.—p. 218.

108. **Cancer at Different Ages.**—Harbitz and Platou analyze the 2,101 cancer cases examined at the Christiania Institute for Pathologic Anatomy in the last fifteen years. The list includes 765 sarcoma cases. In 385, necropsy records were available, in the others the excised tumor and the clinical history only. Charts and tables present the statistics in graphic form, especially with reference to the 71 cases in young people, that is, under 30. The curve for the sarcomas shows 7 congenital, 61 in children under 10, 85 between 10 and 20, and the others scattered almost evenly through the other decades, the maximum, 134, between 40 and 50. The sexes are about equally represented. With carcinoma, on the other hand, the women far outnumber the men, 1,304 to 797, on account of the 481 mammary cancers and 256 uterine cancers. There were 5 cases of carcinoma in the young between 10 and 20, and 66 between 20 and 30, including 47 women and 19 men. One boy of 12 died from a primary carcinoma of the liver. In this as also in a case of carcinoma of the liver in a 17-months infant there was pronounced cirrhosis of the liver, but this was not apparent in a third case, a young man of 19, who also succumbed to cancer of the liver. There was nothing to suggest a teratoid tumor in either case. Another youth of 18 had two cancer nodules in the appendix. A carcinoma of the rectum was found in the cadaver of a man of 28, and cancer of the colon in a woman of 28. Besides these, a small "carcinoid" tumor was found in the small intestine of a 3 months' babe, and five similar tumors in the ileum of a man of 31. A girl of nearly 16 had a large ovarian tumor removed. It had been causing symptoms for about a year. Cancer was also found in one ovary in 4 young women between 20 and 25. Mammary cancer was encountered in 17 young women of about this age, and uterine cancer in 10. In the mammary cases in the younger women the malignant disease involved both breasts from the start. In 5 cases the cancer had developed on the face, nose and scalp. These patients were men of 27 and 34, a boy of 16 and girl of 13 with cancers of the nose, and a woman of 25 with cancer of the scalp that had been eight years developing. The face cancers had developed on an ulceration in the face starting at the seventh and twelfth years. In conclusion they describe the necropsy findings in a case of scirrhous cancer of the stomach in a man of 20.

109. **Paroxysmal Hemoglobinuria.**—Johannessen presents a summary of our knowledge to date of paroxysmal hemoglobinuria, and the various theories proposed to explain it, and describes in detail a case from his own practice. The man of 59 had a history of old syphilis. His attacks of hemoglobinuria during cold weather incapacitated him for work of any kind. Johannessen gave him a thorough course of antisyphilis treatment, and this seems to have cured permanently the tendency to hemoglobinuria. He has had no attacks during the two years since, and his earning capacity has been entirely restored. The autolysin seems to be still present in his blood, however, and the lymphocytosis still persists. Johannessen intends to give him a course of cholesterin if the attacks of hemoglobinuria should return. Lindbom has reported that cholesterin is able to check hemolysis under the influence of saponin, cobra venom, etc. The action of cholesterin is transient however; it lasts only as long as the cholesterin is in the body.

111. **Complications of Gastro-Enterostomy.**—Widerøe refers to hemorrhage, diarrhea and peptic ulcer as well as to the vicious circle. He had a case in which less than three hours after the posterior retrocolic gastro-enterostomy the stomach nearly filled up with blood from two small gaping arteries close to the first suture in the mucosa. These were ligated through a small transverse incision in the anterior wall of the stomach, and there was no further trouble. A well drawn up continuous suture obviates any bleeding from this source. Widerøe agrees with Rovsing that it is better not to trust to clamps, as this may mask conditions permitting hemorrhage after the clamps have been taken off. The pressure from the clamp in itself is liable to entail bleeding later. He reviews the literature and statistics on the vicious circle, relating a case of the typical symptoms coming on two and a half days after the gastro-enterostomy. The abdomen was opened again and nearly the whole of the small intestine was found protruding through a slit in the mesocolon. The incarcerated bowel was cyanotic but recuperated at once as soon as released. To avoid mishaps of this kind, any slits in the mesocolon must be sutured. If the vomiting after a gastro-enterostomy persists after lavage of the stomach and changes of position, no time should be lost before opening up the abdomen anew. In case of need, a supplementary anastomosis between duodenum and jejunum is better than operating anew on the stomach as a rule. He has never known of diarrhea or peptic jejunal ulcer developing after a gastro-enterostomy in his service. The gastro-enterostomy is always made by the posterior retrocolic technic, with the shortest possible loop. He cites numerous statistics all showing that complications after a gastro-enterostomy are rare. Van Roojen compiled fifty-two cases of peptic ulcer after anterior gastro-enterostomy and twenty-five after the posterior operation. The relative proportion was much less after the posterior operation. But no technic excludes all danger of peptic ulcer. Medical-dietetic treatment afterward is indispensable, especially when there is a tendency to hyperacidity. Widerøe insists on a month in bed after the gastro-enterostomy in case of extreme hyperacidity.